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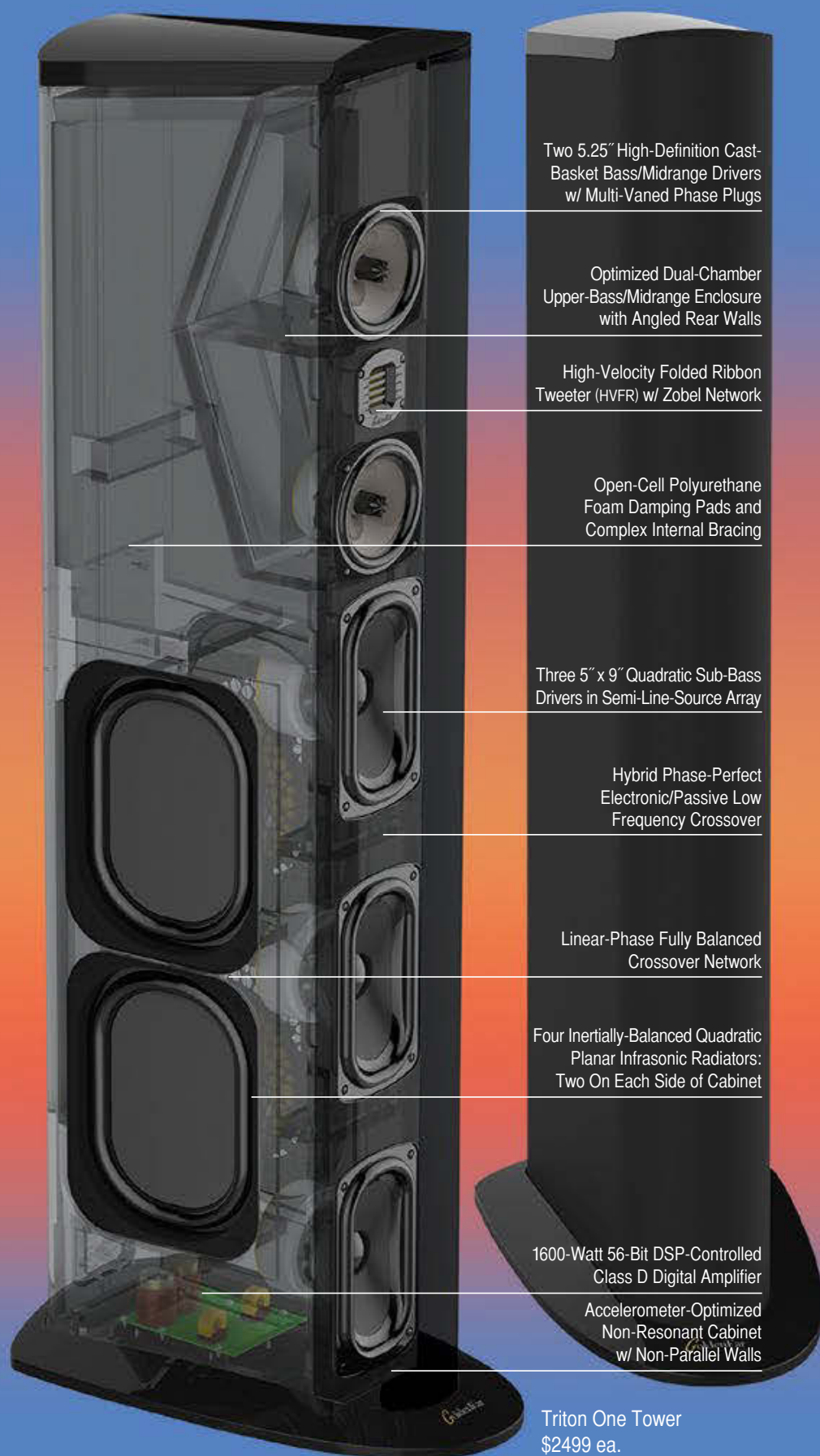
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– Dennis Burger, *HD Living*

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AS WE SEE IT

BY STEVE GUTTENBERG

THIS ISSUE: Audiophiles
and music lovers—
can someone be both?.

Us and Them

I've known a lot of folks with impressive LP and CD collections who were perfectly content with the sound of the crappiest of hi-fis. This diverse group has included recording engineers, musicians, and owners of record stores. Loving music isn't the same thing as caring about the *sound* of music, and maybe, in some alternate universe, those folks would-have-been, could-have-been audiophiles. But in this universe, they didn't, and I'm not sure why.

It's clear that we audiophiles are a different breed. We crave a deeper connection with the sound of music. We also love *gear*, so we're much more likely to do whatever it takes to accommodate speakers and electronics that take up an inordinate amount of our living space. To us, the gear looks cool. "Civilians" think we're nuts.

My sound obsession began in the 1950s, when I was a small child frequently found pressing my Sony six-transistor AM radio to my ear. Ah, there's Jerry Lee Lewis singing "Breathless"—or Chuck Berry's "Maybellene." I was always searching for that magic mojo.

Many audiophiles credit early exposure to the audio system of a dad, a relative, or a neighbor as the spark that ignited their passion for sound. My family didn't have a hi-fi, but in 1961 we bought a Wurlitzer jukebox, a refrigerator-sized thing decked out with garishly colored lights that took over the basement den. We'd load it up with 45s and play tunes. The Wurlitzer was my dream machine. There was something about the way its disc-changing mechanism plucked the selected 45 from the rack and the massive tonearm ever-so-gently lowered the stylus into the lead-in groove that I found endlessly fascinating. The whirs and clunks of the machine going through its motions were all part of the intrigue. I spent hours sprawled on the checkerboard linoleum tile in front of the Wurlitzer, feeling the beat, massaged by the low, churning rumble of its mighty woofers. My pipsqueak six-transistor radio didn't stand a chance. It played the same lyrics, melodies, harmonies, and rhythms, but through the Wurlitzer the sound was completely different—and a whole lot better. I never got over that. I'm still searching for better sound today.

My best friend's dad had a big-rig system that included McIntosh electronics. I can't remember the rest of the gear, but whatever it was, it was impressive, and the Macs' tubes put on a hell of a light show. To me, they looked like rocket ships. My friend's folks didn't play rock'n'roll, just classical music, and I don't recall much about the sound itself—it was background, not foreground, and so no threat to the mighty Wurlitzer.

I began to realize that not all music systems were equally engaging. I was into James Brown, girl groups, and Thelonious Monk, but by the time the Beatles hit I had my own little *stereo* system with a Garrard turntable, a

Loving music isn't the same thing as caring about the sound of music. Audiophiles want more than good enough—a lot more.

plastic amp, and XAM speakers. The sound slammed into high gear when I discovered Jimi Hendrix and Led Zeppelin. Miles Davis's *Bitches Brew* came later, and a little further down the road were Brian Eno's *Here Come the Warm Jets*, *Another Green World*, and *Before and After Science*. Those were the albums I'd play when I checked out new gear. The better the hi-fi, the more of the sound I was privy to. The metamorphosis from music lover to audiophile was complete, and there was no turning back.

It wasn't long after that I began a 16-year stint of selling high-end audio in New York City. I demonstrated great-sounding systems to thousands of non-audiophiles, most of whom were unmoved. They didn't get it. Wilson Audio speakers and Krell electronics, or Quad ESL-63s with Conrad-Johnson amps, failed to get a rise out of most high-end virgins. Worse, they looked *disappointed*—the visual impact of the gear didn't seem to have anything to do with the sound they heard. I learned that exposure to great sound rarely produces instant converts, so it was especially satisfying when a non-audiophile was turned on by the sound.

In the early 1980s, when folks en masse were dumping their LPs for CDs, I began running comparisons of the formats for walk-in customers. Few non-audiophiles had ever heard a great high-end turntable, and through those demos I sold 'tables to folks who were blown away by the difference they heard—and who then began to really *listen*. The ones who *weren't* swayed were much more likely to go for the smallest possible speakers and fuss-free operation. That was all they needed—for them, a hi-fi was an appliance.

One of the things that first attracted me to high-end audio was its human scale. No one knows or cares who designed their iPhone or Samsung flat-screen TV, but owners of Rogue Audio amps can pick up the phone and chat with Mark O'Brien, the man who designs them—or ask John Grado about their 20-year-old Grado Reference cartridge. These guys actually *like* to hear from their customers. High-end audio companies are for-profit businesses, but the most successful of them are still run by people who put their blood, sweat, and tears into making the best-sounding products they can. That, more than money, is what drives them. It's all about the sound of the music.

No one needs a high-end system to play tunes, but it sure as hell is a better way to emotionally connect with music. Why we can't be satisfied with the "rich" sound of a Bose SoundLink Bluetooth III speaker is a small mystery. I dunno. Those pint-sized things may be good enough for most music lovers, but audiophiles want more than good enough—a *lot* more. ■

Steve Guttenberg (Stletters@sorc.com) writes the blog *The Audiophiliac* for CNET.com.

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stereophile

Vol.38 No.4



p. 128

FEATURES

45 Recommended Components

Stereophile's editors and writers rate the best-sounding audio components that have been reviewed in the magazine.

123 God Don't Never Change

Though little is known about his life or death, the sound of Blind Willie Johnson's slide guitar and fire and brimstone voice have echoed across the musical landscape since his death in 1945. On a new tribute record, a host of stars including Tom Waits, Lucinda Williams and Rickie Lee Jones celebrate his haunted legacy. By Robert Baird.

EQUIPMENT REPORTS

128 PonoPlayer portable media player

by John Atkinson

141 Emotiva Audio Pro Airmotiv 4S powered loudspeaker

by Robert J. Reina

149 Tekton Design Enzo XL loudspeaker

by Herb Reichert

159 Thöress 300B monoblock power amplifier

by Art Dudley

FOLLOW-UPS

171 Spondor D7 loudspeaker

by John Atkinson

175 Audioengine A2+ powered loudspeaker

by John Atkinson



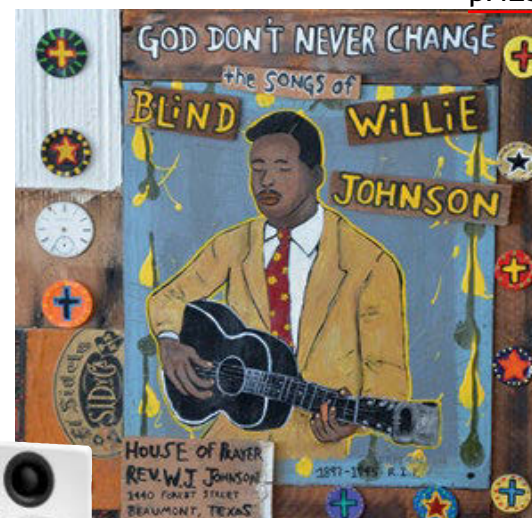
p. 159



p. 175



p. 141



p. 123



p. 149



p. 171

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APRIL 2015

Vol.38 No.4

p. 23

p.29

p. 121

p.23

p.35

p.179

COLUMNS

3 As We See It

Audiophiles and music lovers—can someone be both? Steve Guttenberg asks the question.

11 Letters

Readers comment on Audiophilia Nervosa and the audibility of harmonic and intermodulation distortion.

Get on your Soapbox! Visit the forums at www.stereophile.com.

17 Industry Update

High-end audio news, including the shows and dealer-sponsored events taking place in March and April 2015, plus *Stereophile's* new "Recommended Components Collector's Issue," counterfeiting, the upward price spiral, and the advent of high-end headphone stores.

Want to know more? Go to the "News Desk" at www.stereophile.com for up-to-the-minute info.

23 Analog Corner

Michael Fremer listens to Clearaudio's Maestro V2 moving-magnet cartridge.

29 Listening

Art Dudley celebrates the glories of mono LPs played with Ortofon's CG 25 DI Mk.II mono MC phono cartridge.

35 The Fifth Element

John Marks reports on Tellurium Q's Black XLR cable and DHDi's Hanson Hsu and his intriguing desert-island picks.

179 Record Reviews

For April's "Recording of the Month," we've selected the first recording of Sasha Matson's Jazz Opera, *Cooperstown*. In classical this month we have Anna Netrebko's new recording of Richard Strauss's *Four Last Songs, Ein Heldenleben*. In Rock/Pop, we have the latest from American Aquarium and Cracker. In Jazz, new recordings by Charles McPherson and the late Kenny Wheeler.

189 Manufacturers' Comments

DALI, Musical Surroundings, and Tekton Design comment on our reviews of their products.

194 Aural Robert

Old folks hate new music. And yet there's hope for the future. Robert Baird ruminates on the state of music today.

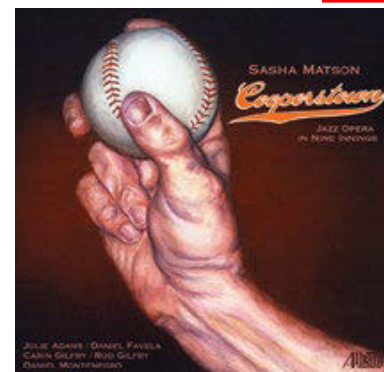
INFORMATION

192 Audio Mart

190 Manufacturers' Showcase

190 Dealers' Showcase

191 Advertiser Index



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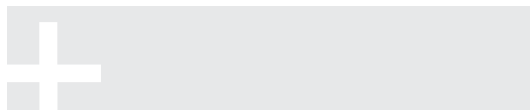
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LETTERS

FEEDBACK TO THE EDITOR

Give me a good hi-fi system

Editor:

I agree with Steve Guttenberg ("As We See It," January 2015, p.3). It's hard to focus on a lovely *adagio* when the person next to you is sneezing and coughing and you're worried about catching a cold. Likewise, people talking in jazz clubs is a huge turnoff. So give me a good hi-fi system, a nice glass of wine, and a silent background. That's how I enjoy the experience of listening the best.

—Tom Schnabel

Marina del Rey, CA
tom@tomschnabel.com

Nailing the nervosa

Editor:

Congratulations, Mr. Robert Schryer ("Audiophilia nervosa," February 2015, p.3). You hit the nail on the head!

—Vic Miranda

New York, NY

An incurable disease?

Editor:

At last, gentlemen, there is recognition of this dreadful, incurable disease ("As We See it," February, p.3). The only known treatment is to keep putting money into the hands of unscrupulous people who promise some temporary relief from the symptoms.

The downside is that by the time you have run out of money and have your megasystem installed, your hearing is gone anyway, after which a \$300 Walmart system sounds pretty good.

There is *no* justice! I propose we form the Royal Society for the Prevention of Audiophilia Nervosa (RSPAN) and campaign for a seat in the senate. Can't be any worse than the present one.

—Brett Sowerby

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A tonic

Editor:

I have replaced every part of my system over the years (and a million and one times in my head), to find that that last pick of a guitar string is still not exactly perfect. When I smile and feel joy listening to a song I've never heard before streaming to my tiny Jambox, it reminds

me that, yes, it was "the music itself, and the way it made me feel," that matters.

Thanks, Robert Schryer, for this tonic for my musical soul!

—Jay Jackson

jhlorlando@gmail.com

A great article

Editor:

John Marks's "The Fifth Element" in February ("Which Wine Goes Best with Crow?," p.43) was great, although I adore Heifetz and have always disliked Oistrakh for his mannered, prosaic playing. Heifetz's forward propulsion I find exhilarating. I think Heifetz always hated Oistrakh because of what he did to Erick Friedman.

But really, what do I know? I love Gould's Mozart!

—Shy Kline

Shyk@aol.com

The speeded-up Brahms Violin Concerto

Editor:

Re: John Marks's column in February: What a fascinating article! And great detective work! I'm disappointed with myself, as I have about seven vinyl copies of this concerto with different artists, including the Klemperer recording, but, alas, not the Szell. How could I have missed that one in all my years of collecting?

Count me in for contributing to a vinyl reissue.

—Ken McCarty

KMcCarty@bbtcap.com

A Dudley Disciple

Editor:

At times, I'm deluded into thinking I'm a pretty fair wordsmith—but then the next issue of *Stereophile* arrives, with another Art Dudley column to remind me that, at best, I'm a mere hack. Art's "Listening" columns are testament to a mastery of language and *calembours* that most can only envy. It's impossible to read Art's columns through just once because, as many chuckles as the first read might evoke, there's bound to

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Thanks, Robert Schryer, for this tonic for my musical soul!

be some cleverly crafted badinage that I missed, and all remarkably on topic. Great writing, Art! Oh, and your equipment reviews are okay too.

—Bruce Grunsten

Ponce Inlet, FL

Keeping it up!

Editor:

I have been reading audio magazines since the days of *Stereo Review* and *High Fidelity*, in the mid-1960s. Art Dudley's column in February, "How I learned to stop worrying and love second-harmonic distortion" (p.35), was, in my humble opinion, the best piece I've read in all that time. Insight and self-awareness are all too rare these days. Keep it up, Art.

—Mike Corgan

mcorgan@bu.edu

Putting it into words

Editor:

Thank you, Art Dudley, for putting into words that which many of us struggle to articulate: that each of us chooses, in an audio system's components, that which brings *each* of us closer to the music he or she loves. You love single-ended tubes; I'm a solid-state man. You have your priorities in assembling your audio system, I have mine. In the end, after paying those luxurious prices to be able to luxuriate in our favorite music, each of us has (or hopes he has) found a system that does the same thing: allows us to sink our souls deeper into the music that makes our lives more enjoyable.

We may not agree on *how* we got there, but I believe, after reading [Art Dudley's] column in February, that we both agree that the end result, *for each of us*, was well worth the effort as we spend time immersed in the music we love.

Thanks, Art.

—John Crossett

www.theaudiobeat.com

An honest examination

Editor:

Even though, for some time, I have thought that Art Dudley prefers components and sound somewhat more colored

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in just one chassis.



From day one, we at Lamm Industries have been passionate about analog.

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than I do, I rarely skip his column. In the February 2015 issue, Art wrote one of the best and most honest examinations of distortion I have seen. Since I have read *Stereophile* and *The Absolute Sound* since at least 1973, in addition to various recording-industry magazines, I have read many articles dealing with distortion.

I still cringe when I see even professionals talking about 0.003% THD and such. Even John Atkinson has fallen into this at times. Are there any recent data that show how many folks can hear THD below 0.5%? Older tests show that very few can. Yet we have even some high-end manufacturers using questionable circuitry seeking ever-lower THD. Odd harmonics, intermodulation distortion, and whatever it is that MP3 and its brethren do are the real culprits.

One of the best examples of folks with their heads on straight was the original Great American Sound. GAS produced the Ampzilla. They advertised 0.5% THD at a time when even mid-fi equipment was well below that. The amp sounded very musical, with lots of punch.

Fortunately, most folks in the high-end arena have gotten away from large amounts of global feedback. This may account for why there are so many less-fatiguing transistor amps these days.

Keep up the good work, Art.

—Robert A. Ober
robob@robob.com

Risking misinformation

Editor:

I hope that Art Dudley intends to expand on his explanation of nonlinear distortion begun in the February issue because, as things stand, he risks misinforming readers as to why it has the effects it does on the reproduction of music.

Harmonic distortion is relatively easy to measure and to interpret, which is why it has been measured and specified for so many years. Moreover, if you've the wit, it allows the transfer characteristic of the device under test—the mathematical relationship between input-signal amplitude and output-signal amplitude—to be determined, although that requires data on harmonic phase as well as harmonic amplitude, information that isn't routinely available. (See my article "Phase Contrast" in *Hi-Fi News*, July 2003, for an explanation; or the report on this topic of a lecture I gave to the AES UK section in April 2011, at www.aes-uk.org/meetings/past-meetings-archive/meetings-archive-2011/.)

What the consideration of harmonic distortion does not do, in and of itself, is

Intermodulation products usually overwhelm harmonic products in number and relative power.

explain the nature of nonlinear distortion in complex signals such as music, where intermodulation products usually overwhelm harmonic products in number and relative power, thereby rendering the consonance or dissonance of the harmonic products of little significance. (IM products are generally enharmonic.)

If readers refer back to my *Stereophile* article "Naughty But Nice," from April 2006 (www.stereophile.com/reference/406howard/index.html), they will learn more of this, and how only second- and third-order distortions can exist independently. Except in the case of a fixed-amplitude signal (which is not music), seventh-order distortion, for instance, cannot be generated without all lesser odd orders (fifth and third) also being present. Similar applies for all even-order nonlinearities of fourth-order and above; *eg*, sixth-order distortion will usually be accompanied by fourth-order and second-order. That's the mathematics of transfer characteristics, and it is inescapable.

With no disrespect to past *Stereophile* test CDs, anyone who wants to understand what different patterns of nonlinear distortion do to the listening experience would be much better downloading from my website (www.audiosignal.co.uk/freeware.html) the AddDistortion freeware utility used in the preparation of "Naughty But Nice," and experimenting for themselves with music of their choice. It allows nonlinearity to be defined in terms of harmonic amplitudes and polarities, but because it uses these to calculate the transfer characteristic, when it processes a music file it generates the resulting intermodulation components as well as the harmonic ones.

It has the limitation of not taking into account frequency-dependent distortion behavior, so it can't model real amplifiers or loudspeakers. Nevertheless, it's a good tool for understanding the perceptual consequences of different patterns of nonlinear distortion—and it generates a curve of the transfer characteristic. One of these days, I must modify it to process stereo files; at the moment, it will handle only mono 16-bit/44.1kHz files of a maximum 60 seconds in length (because

of the initial 24x upsampling and subsequent downsampling applied to prevent aliasing of the distortion components). Other utilities on my freeware page, ChannelIsolate and ChannelCombine, allow you to split off and recombine the left and right channels of a suitable stereo WAV file before and after processing, if you don't possess audio editing software.

—Keith Howard
www.audiosignal.co.uk

ROTFL!

Editor:

The other day (TOD), reading your magazine (RYM *vs* ROM, for "reading other magazines"), I ran into a VIA (very interesting article) about NPs (network players). It was HTUAF (hard to understand at first), especially with mentions of PCM, DSD, DXD, etc., formats, and AAC, AIFF, FLAC, WMA, DIFF, DSF, PPYIU, LLMAWY, @#45\$%^ files and the like. But I was RYM (after first ROM, where I also found some VIA, though not so HTUAF) while listening to my old records (about 3000, all of them supporting a MCc—MC cartridge—that can handle up to 2bit/gr), which always MMFG (makes me feel good), and drinking 1G (one glass) of scotch (Macallan/12 Years Old/up to \$100), which MMFG EM (even more). But since I was not able to fully UAF the already-mentioned VIA, I decided to go back to RYM, but with 2G (and this time a tried an Oban/14YO/up to \$100). The following day I had a LCaCM (little confusion about computer music) and a terrible TH (hangover).

—Jose A. Cano
Tuscaloosa, AL
jcano@ua.edu

Dan Grimes from Nagra Kudelski

Editor:

As a very close friend of Dan Grimes, I thought that you and your readers would want to know that he passed away suddenly on December 17, 2014, at his home in Oklahoma City. Dan and I grew up together in western Pennsylvania in the early 1960s. We discovered Dylan together. I last saw him back in June, when he visited me and I played for him my pair of Harbeth P3ESRs. Dan was quite a knowledgeable and eccentric fellow to have stomped the tundra!—Wayne Hatton

Conway, PA

That is sad news indeed, Mr. Hatton. Dan visited me in Santa Fe in 1993 to demonstrate a Nagra-D open-reel digital tape recorder, which we subsequently purchased and used to record most of the Stereophile CDs.

—John Atkinson

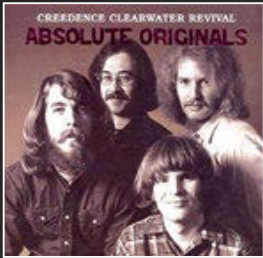
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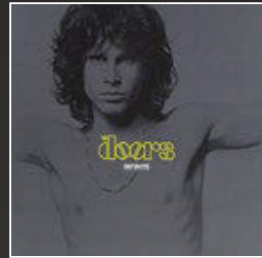
The CCR Box Set
Creedence Clearwater Revival
Absolute Originals



Stevie Ray Vaughan
Texas Hurricane - Box Set



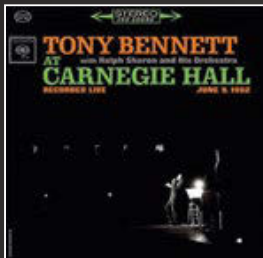
Nat "King" Cole
The Nat "King" Cole Story



The Doors
Infinite - Box Set



Norah Jones
The Vinyl Collection - Box Set



Tony Bennett
At Carnegie Hall



Peter, Paul & Mary
In Concert



Harry Belafonte
At Carnegie Hall



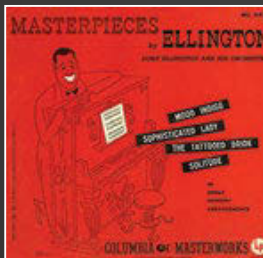
Julie London
Julie Is Her Name,
Vol. 2



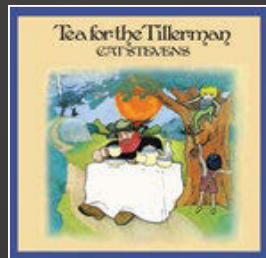
Julie London
Latin In A Satin
Mood



Dave Brubeck
Time Out



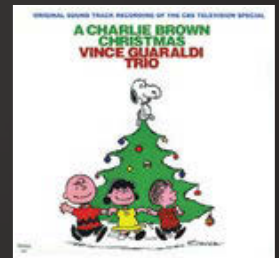
Duke Ellington
Masterpieces By
Ellington



Cat Stevens
Tea For The
Tillerman



Shelby Lynne
Just A Little Lovin'



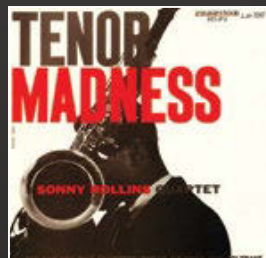
Vince Guaraldi Trio
A Charlie Brown Christmas



The Beach Boys
Surfer Girl



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INDUSTRY UPDATE

AUDIO NEWS & VIEWS

YOUR SPECIALTY AUDIO RETAILER #1

Paul Messenger

Caveat emptor, the ancient Latin phrase meaning “let the buyer beware,” is something today’s purchasers of high-end hi-fi gear need to keep in mind. Recently, an audio hi-fi dealer was telling me about the common but reprehensible practice of “showrooming”: customers using the demonstration facilities of a traditional bricks-and-mortar retailer to decide among various components, prior to buying for significantly less money from an Internet outlet.

On one occasion, however, the Internet buyer returned to the dealer’s store, bringing with him the new component he’d just purchased online. It looked identical to the in-store unit he’d heard earlier, but when dealer and customer sat down to listen, it sounded a lot less impressive than the official sample the retailer had bought directly from the manufacturer. It was clearly a counterfeit, and the result was one very dissatisfied customer.

It’s impossible to say just how widespread such counterfeiting is, but the dealer (who prefers to remain anonymous) told me that it’s becoming

much more widespread throughout high-end hi-fi, where demonstration is an essential part of the purchasing process, yet prices are high enough to tempt the unscrupulous to make and sell fakes that fail to deliver the promised sound quality.

YOUR SPECIALTY AUDIO RETAILER #2

Paul Messenger

High-end hi-fi is sometimes described as a broad church, and there’s no denying that in the past couple decades it’s become a lot broader, especially at the upper end of the market. One can probably trace the birth of high-end hi-fi back to the 1970s, but the last few years have seen a serious expansion in the availability of components that only the superrich can afford.

I recently visited Touraj Moghaddam, a founder of and former designer for Roksan Audio, and founder and current proprietor of Vertere Acoustics. We began talking about his recent trip to the Far East, and his extremely costly (\$35,000) “Look, Ma, no bearings!” Reference tonearm (see “Industry Update” in the February 2014 issue, Vol.37 No.2). He explained that the best way he

“Let the buyer beware,” is something today’s purchasers of high-end hi-fi gear need to keep in mind.

knew to improve the Reference’s performance was with the assistance of some of the finest hi-fi systems in the world: systems that tend to cost around \$1,000,000, mostly featuring active-drive electronics (and sometimes speakers) from Swiss company FM Acoustics and including complex analog processing, all painstakingly set up in large rooms. Such rooms and systems are rare, but through his distributor in Singapore, Moghaddam has found more than one Singaporean happy enough to help Moghaddam, and to take advantage of his undeniable setup skills to fine-tune the system.

A similarly extreme example occurred in Munich last May, at the 2014 High End Show. In the Kaiser Acoustics room, I began talking with Mark Doehmann, creator of Continuum Audio Labs’ Caliburn turntable and Cobra tonearm, and

SUBMISSIONS: Those promoting audio-related seminars, shows, and meetings should e-mail the when, where, and who to JAtkinson@enthusiastnetwork.com at least eight weeks before the month of the event. The deadline for the June 2015 issue is March 20, 2015.

CALENDAR OF INDUSTRY EVENTS

ATTENTION ALL AUDIO SOCIETIES: We have a page on the *Stereophile* website devoted to you: www.stereophile.com/audiophile-societies. If you’d like to have your audio-society information posted on the site, e-mail Chris Vogel at info@XLinkAudio.com.

Please note that it is inappropriate for a retailer to promote a new product line in “Calendar” unless this is associated with a seminar or similar event.

CALIFORNIA

■ Sunday, March 22, 2-5pm: The **Los Angeles & Orange County Audio Society** will hold its monthly meeting at **Upscale Audio**, in Upland (2504 Spring Terrace, 909-931-9686). The new, powerful **PrimaLuna** DiaLogue Premium HP integrated amplifier,

preamplifier, and amplifier will be auditioned for the Society. The wondrous **Kiseki** Purpleheart N.S. cartridge will be used in the analog system. Kevin Deal, president of Upscale Audio and vice president of the Society, will host the event, and continuous tours of his world-renowned vacuum-

tube stock and display will be conducted. New offerings from Kiseki and PrimaLuna will be announced. A special industry guest appearance is in the works. **Eastwind Import** will provide new, imported LPs and CDs for our shopping fun. A raffle is planned and a terrific lunch will be served. Visitors and new members are welcome. Parking is free. For more info, visit www.laocas.com or call Bob Levi at (714) 281-5850.

■ Saturday, April 11, 2-5pm: The **Los Angeles & Orange County Audio Society** will hold its monthly meeting at **Evolution Audio & Video**, in Agoura Hills (5341

Derry Avenue, Suite S). Bill McKiegan of **Krell Industries** will demonstrate Krell’s latest in high-performance audio and video equipment, including their spectacular Vanguard integrated amplifier. Other industry representatives will be on hand for demonstrations and Q&A. **Eastwind Import** will be there to offer LPs and CDs for sale. A raffle is planned and lunch will be served. Guests, visitors, and new members are invited. Parking is free. For more info, visit www.laocas.com or call Bob Levi at (714) 281-5850.

■ Friday-Sunday, May 29-31: The **Los Angeles &**

Rumen Artarski, proprietor of Bulgarian electronic manufacturer Thrax Audio. They handed me an interconnect to take home and try. When I did, I discovered that the cable—a David, made by EnKlein—indeed delivered absolutely superb sound quality. Very impressed, I looked it up on the Internet. First I learned that EnKlein is based in Kansas City, Missouri; second, that the

**A state-of-the-art
headphone system
costs only a fraction
as much as its
loudspeaker-based
equivalent.**

2m-long David cable costs \$20,000. \$20,000! That's more than most of the components in my own system cost and provides further evidence of the evolution of a "super high end."

There was a time when I could afford to purchase a hi-fi system that was not only "high end" but close to the state of the art. Not today—the last two decades have seen the prices



The UK's Hi-Fi Lounge is a high-end retail store dedicated to headphones.

of upmarket hi-fi rising at a rate that dramatically outstrips that of inflation. Performance has also improved, but whether at the same rate as prices is debatable.

UK: BEDFORDSHIRE

Paul Messenger

While many audiophiles remain puzzled by the new enthusiasm for

headphones, right now, headphones and their dedicated amplifiers are hi-fi's hottest products. The popularity of iPods and smartphones as music sources has helped make headphone use far more widespread, acceptable, even fashionable. The revival may also have something to do with increasingly crowded urban environments and the need to avoid disturbing family and

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neighbors. And sheer value for money may play a part—a state-of-the-art headphone system costs only a fraction as much as its loudspeaker-based equivalent.

Headphone sales have greatly increased and are still booming,

which is why a “headzone” has been a popular feature of recent hi-fi shows both in the UK and the US. That was the case at last fall’s National Audio Show, in Whittlebury, Northamptonshire, though at the time I didn’t realize that the show’s

substantial headphone feature had been organized by Hi-Fi Lounge, a Bedfordshire dealer founded toward the end of 2012.

Hi-Fi Lounge’s proprietor, Paul Clark, had already devoted his third and smallest demonstration room at his

Orange County Audio Society

will present **T.H.E. Show Newport**, its co-venture with T.H.E. Show Organization and the largest fine-audio show in North America open to the public. Our fifth year and most extensive show ever, T.H.E. Show is presented at the gorgeous Hotel Irvine (17900 Jamboree Road, Irvine) for the first time. Once again, join the Society in the hotel lobby or in advance and get free entrance to T.H.E. Show for all three days! Current LA&OCAS members get big show discounts. For all information, including upcoming events, please visit our website, www.laocas.com.

com, or contact Bob Levi at (714) 281-5850. Or visit T.H.E. Show Newport website at <http://theshownewport.com>.

CONNECTICUT

■ Thursday, April 16, 7-9pm: **Take 5 Audio** (105 Whitney Avenue, New Haven) is hosting a Musical Evening with **Linn’s** Steve Brothman, featuring the Akurate and Majik systems and all things Linn; with Q&A. Come early and stay late. Refreshments provided. Details at www.take5audio.com.

■ Saturday, April 18, 3-5pm: **Take 5 Audio** (105 Whitney Avenue, New Haven) is

having a Musical Evening with Peter McGrath of **Wilson Audio Specialties** (and his incomparable recordings), featuring the Alexia and the new Sabrina speakers, as well as discussion of Wilson Audio’s design techniques; with Q&A. Come early. Refreshments provided. Details at www.take5audio.com.

GEORGIA

■ Sunday, March 22, 2-5pm: The **Audio Video Club of Atlanta** is jointly hosting a showcase of **EgglestonWorks** loudspeakers, including the Andra III and Nico models,

and **Kimber Kable** will demonstrate their latest analog and digital cables. Representatives from the Memphis, Tennessee, and Ogden, Utah, companies will be present to answer questions about their products. Location: Virtual Properties Training Room, 2750 Premiere Parkway, Duluth. Guests welcome; refreshments provided. For information, contact John Morrison, President, at (770) 330-3919 or jhm3@bellsouth.net; or Chuck Bruce, VP, at (770) 550-1434. For additional details, consult the club’s website: www.a-vcoa.org.



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retail shop to a selection of relatively upmarket headphones, and soon was selling enough to justify further expansion. A week after the show, he started a dedicated headphone retail operation, Highend Headphones, in a separate building from Hi-Fi Lounge, though sharing the same converted farm site in Dunton.

Although the UK's main north-south highway, the A1, isn't all that far away, Dunton is in the heart of the English countryside and not well-served by main roads. But there is ample, free parking. Highend Headphones is actually run by Clark's wife, Wendy, in a building that she also uses as an administration center for Hi-Fi Lounge.

Clark says it's still a bit early to say how things are going, but he's optimistic that the new business will succeed, and is carrying some 70 relatively upmarket models from more than a dozen brands. He makes a number of valid points to distinguish headphone from loudspeaker listening. Headphones offer very good value for money, bringing an intimacy to music reproduction that may be due to the elimination of the listening room. A downside, of course, is that the sound thereby lacks the impact you get when the sound affects the listener's body, but headphones do offer a wide range of sound quality, design, modifiability, and amplification. This gives customers an unbeatable combination

of personal choice and affordability, and suggests that a showroom with a civilized ambiance that purveys high-quality headphones in the middle of England could prove a viable business proposition.

12 YEARS OF "RECOMMENDED COMPONENTS"

John Atkinson

"Recommended Components" has been *Stereophile's* most popular feature since its first appearance, in the fifth issue of the magazine. Fifty-two years later, we've put together a special issue: *Stereophile Recommended Components Collector's Issue*. While the regular "Rec-



ommended Components" listings in our April and October issues concentrate on products that have been reviewed in the previous three years, this special 180-page issue features capsule reviews of every audio component that has been reviewed and recommended by *Stereophile's* team of writers and editors in the 12 years of listings since 2003: more than 400 loudspeakers and subwoofers; more than 400 amplifiers and preamplifiers; almost 300 digital disc and file players and digital processors; 200 turntables, tonearms, and phono cartridges; and all manner of headphones, cables, room acoustic treatments, and accessories.

In the special issue, almost 1500 products are described, categorized, and recommended in our regular Classes, A+ through E. Following each product's name is the retail price that was current the last time that product appeared in "Recommended Components," the issue of the magazine in which our original review appeared, and the period during which it was listed (eg, "October 2003–April 2010"). In addition, *Stereophile's* Editor-at-Large, Art Dudley, has written guides on how to choose products in each category, as well as how to find a specialty audio retailer, while Robert Deutsch contributes an essay on Affordable Audio: "High-quality sound-reproduction equipment isn't just for those with big bucks," he writes, and explains how to assemble

■ Sunday, April 19, 2–5pm: The **Audio Video Club of Atlanta** is hosting an evaluation and demonstration seminar of latest-generation compact and portable digital audio gear, including DACs for headphone, desktop, and main-system use. Devices included will be several levels of Light Harmonics Labs' **Geek Pulse** gear, including the Pulse, Pulse fi, Pulse Xfi, and Pulse Infinity. Other latest-generation products will include **iFi Audio's** iDSD Micro and Nano. Additional products will be announced prior to the meeting. A locally sourced and designed power supply for the Geek Pulse DACs will be auditioned. More information will

be provided via the club website: www.a-vcoa.org. Location: Virtual Properties meeting room, 2750 Premiere Parkway, Duluth. For information, contact John Morrison, President, at (770) 330-3919 or jhm3@bellsouth.net; or Chuck Bruce, VP, at (770) 550-1434. Guests and new members welcome.

MINNESOTA

■ Saturday, March 14, 2–6pm: **Analog Audio of Minnesota** will hold its annual Spring Spin Party and introduce the latest **VTL** equipment to attendees. Luke Manley, president of VTL, will be on hand to introduce new products and answer questions. Attendees

are encouraged to bring their favorite records to share. Refreshments will be provided, and there will be a drawing for free LPs. Space is limited; RSVP to (612) 808-0709 or events@analogaudio-mn.com. Please visit analogaudio-mn.com for the latest.

■ Tuesday, April 21, 7–9pm: the **Audio Society of Minnesota** will hold its monthly meeting. This month's meeting will feature Tom Fine, son of Robert and Wilma Fine. Tom will join us to discuss the intertwined history of his parents, the **Mercury Living Presence** record label, and the Minneapolis Symphony Orchestra. He will focus

on several important MSO recordings making their debuts on CD in the third Mercury Living Presence boxed set, due out March 2015. The meeting will be held at the Pavek Museum of Broadcasting, 3517 Raleigh Avenue, in St. Louis Park. Refreshments will be served; guests, visitors, and new members are welcome to attend. For more information about this meeting, visit our website at www.audiomn.org.

CZECH REPUBLIC

■ Friday–Saturday, March 27–28: the **High End Praha Audio/Video/Smart Home Show** takes place in Prague. Find more details at www.audio-video-show.cz.

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UK: BBC TV

Paul Messenger

The relatively long lead times of printed magazines extend beyond those normally available for online viewing, so I am not sure if these programs will still be available by the time you read this issue. However, I've mentioned the BBC's excellent radio documentaries on more than one occasion, and I still find their sheer eclecticism fascinating—I'd never heard of itinerant multi-instrumentalist and folk-blues musician Abner Jay (1921–1993), but as I write, his radio profile is about to begin (see <http://tunein.com/radio/The-True-Story-of-Abner-Jay-p675517/>).

BBC TV's music programming has been rather less adventurous, but

on the evidence of two recent shows, that situation might be changing.

Sound of Song, a history of recorded music in three hour-long episodes, is fascinating and infuriating. At the time of writing, I'd seen only the first episode, which covers the cylinder-*vs*-disc era, the transition from acoustic to electrical recording, Western Electric's innovations in bringing sound to films, and the musicals of Fred Astaire and Ginger Rogers. It was very competently presented by musician Neil Brand, though Brand's knowhow is clearly more musical than technical. Most interesting were the opportunities to see—and hear—some of the very earliest sound recording and reproducing equipment, filmed at such locations as the the museum of the Thomas Edison Center at Menlo Park, as well as some impressive recreations of early recording techniques.

One might assume from the first episode that Brand is a bit too fond of Irving Berlin and Louis Armstrong, but *Sound of Song* is nonetheless peppered with intriguing anecdotes. I had been unaware that Armstrong is rumored to have invented scat singing in 1926, as a consequence of accidentally dropping

the lyric sheet while recording “Heebie Jeebies.” Despite Brand's occasional technical faux pas, I very much look forward to seeing episodes two and three.

The Joy of Mozart was a one-off program notable for the irreverent way presenter Tom Service, a respected classical music critic and blogger for *The Guardian*, covered the “Mozart industry” that sprang up in Salzburg and Vienna years after the composer had been buried in an unmarked pauper's grave (see <http://tinyurl.com/q3zx7rl>). Service is invariably well worth watching and hearing, and especially here, on a topic he obviously respects and loves even more than the tourist industry he loathes.

Whether *Sound of Song* and *The Joy of Mozart* represent a new enthusiasm for musical topics at BBC TV I can't say, any more than I can tell those living outside the UK how to access them, given that the BBC's iPlayer app doesn't work for non-UK residents. But after suffering a depressing Christmas-holiday period filled with repeats of familiar movies I'd already seen too many times, these new programs offer hope for the future. ■

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ANALOG CORNER BY MICHAEL FREMER

THIS ISSUE: Listening impressions of Clearaudio's Maestro V2 moving-magnet cartridge.

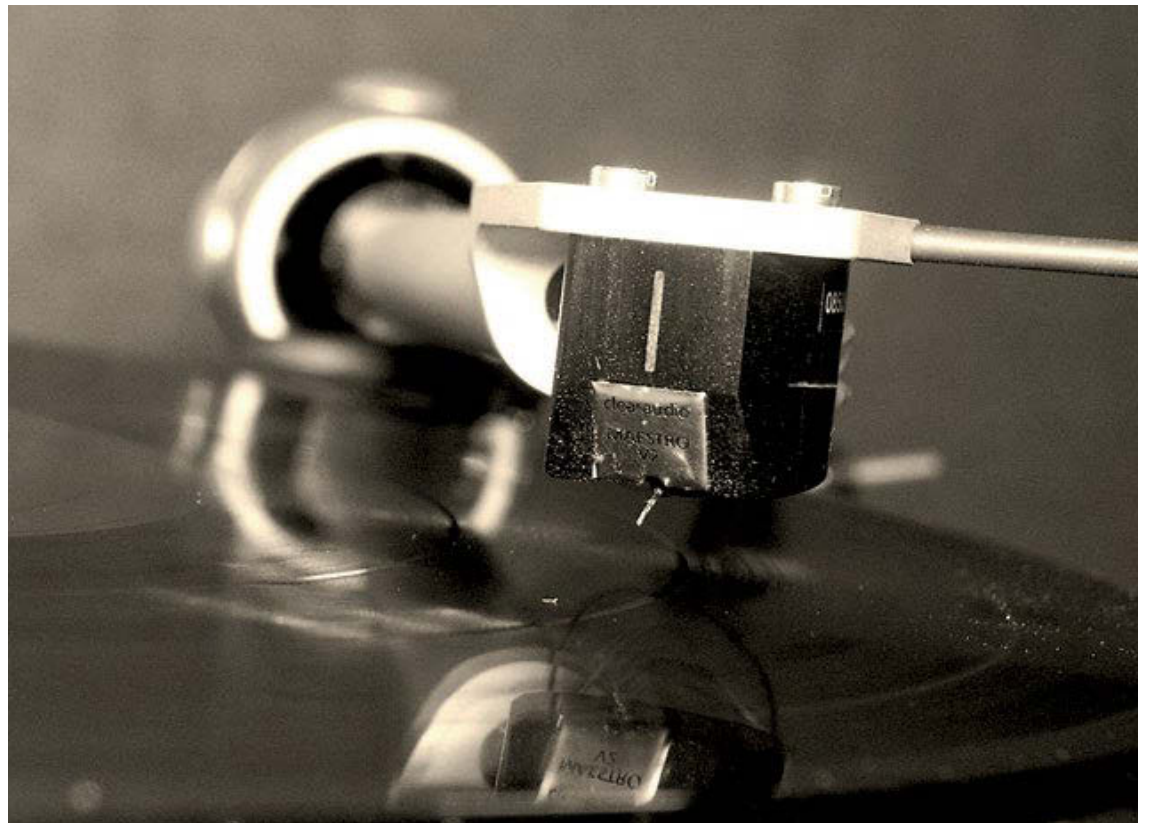
The Moving-Coil/Moving-Magnet Divide

Forty years ago, moving-coil cartridges were exotic. Now they're mainstream. The main advantage of MCs is obvious: rather than the system used in moving-magnet cartridges, in which relatively heavy magnets attached to the stylus's cantilever are moved past a stationary coil-and-armature assembly to create the electrical signal, moving coils, as the name implies, move the relatively lightweight coil and armature past the magnets. The lower the cantilever assembly's moving mass, the lower the system's response time. The lower the response time, the faster and more detailed the reproduction of the music. And MCs' electrical characteristics mean that they have greater bandwidth.

Those aren't the only two types of phono cartridge, of course. There are the moving-iron systems used by Grado and Soundsmith, as well as strain-gauge types and the new optical cartridge from DS Audio.

Given the proliferation of MCs, particularly at the top of the sonic pecking order, it's reasonable to argue that, compared to the 1970s, MC and MM cartridges have reversed places in terms of popularity—much to the consternation of those who argue that MMs have considerable advantages over MCs, despite the latter's lower moving mass.

MM cartridges' fixed coils comprise far more turns of wire than do the coils in MCs, which means that MMs output far more voltage—on average, 10 times more. Thus they don't require head amps, or step-up transformers, or an extra gain stage, any of which, unless carefully designed and built, can add noise. MMs tend to have greater compliance or flexibility (think: softer springs on a car suspension) than MCs, and can therefore accurately track and trace an LP's groove with a lower vertical tracking force (VTF). In the late 1960s, the peak of MM design, cartridges from Shure, Pickering, Empire, and other manufacturers were able to work with VTFs as low as 1–1.5gm. These MM cartridges of low VTF and high compliance in turn required low-mass tonearms to keep the resonant frequency of the arm and cartridge below the lowest audible notes of music (16Hz), but above the level where warp and wow kick in (below 8Hz). Today, designers tend to come up with tonearms of medium to high mass that are better suited to the higher



Tonearms of medium to high mass are better suited to the higher mass, lower compliance, and greater VTFs required by MCs.

mass, lower compliance, and greater VTFs required by MCs.

I can hear you newly arrived vinyl fans: "Why would you give up lighter VTFs and higher output? What do you gain?" The best answer is to listen to a properly configured and amplified MC cartridge. *Speed kills*, both literally and in the word's more positive colloquial definition.

As for the alleged record wear caused by higher VTFs (today's MCs average 1.75–2.4gm), the evidence suggests that reducing or preventing wear is more a matter of tracking accuracy than of lower VTF—though it could be argued that the least amount of wear should be produced by a combination of the lowest possible VTF and the

most accurate tracking.

That said, based on decades of experience, I can report with 100% certainty that heavier VTFs do not cause audible groove wear or shave off high frequencies. In fact, the only audibly damaged records I have are those from the days of my light-tracking fetish in the late '60s, when I bought my first Shure V-15. Shure claimed that model could track at 0.75–1.5gm, so I figured lighter was better—and it might have been, had I had a top-quality arm. But while my Dual 1009SK turntable's arm was good *for a record changer*, it wasn't good enough for the Shure to track well at 0.75gm. I wasn't aware of that as I played records—at least, not at first—but eventually I began to hear a constant, low-level crackling noise. I came to realize that this was wear created by the stylus bouncing around in the groove, ricocheting off the groove walls.

Today, using various MC cartridges with VTFs of 1.72–2.8gm, I hear no wear, and the highs are all still there. I love playing, for MC skeptics, an original pink-label pressing of Jethro Tull's *Stand Up* (Island ILPS 9103) that I bought in 1969 and have played dozens, if not a hundred times, and having them compare it to their CD edition. In terms of cymbal shimmer and flute air, there's *no* comparison. The LP kills the CD—and not because I've incorrectly loaded the cartridge to produce a high-frequency resonant peak. The HF etchings on that record remain intact—perhaps more than does the magnetic flux on the almost half-century-old master tape!

MC and MM cartridges are both resonant systems that produce electrical peaks in need of taming, using the loading provided by the input impedance of the phono preamplifier. In the case of MMs, loading is primarily in the form of shunt capacitance, while MCs require resistive loading. Let's steer clear of the "whys" in this review. If you want to learn more about all this, read Jim Hagerman's excellent tutorial on the subject: www.hagtech.com/loading.

html.

To optimally shorten an MC's response time while producing reasonably high voltage output, designers use powerful fixed magnets and fewer turns of wire in the coils. Modern magnet and coil technology can produce greater outputs (up to 0.5mV) from fewer turns than was possible a few years ago, when

I can report with 100% certainty that heavier VTFs do not cause audible groove wear.

fewer turns (and faster response) meant outputs as low as 0.1mV—and higher outputs meant more turns of wire, thus more mass, and higher internal impedances. Today's MCs produce outputs of 0.2–0.5mV while maintaining low internal impedances of 2–8 ohms. The fewer turns of wire in a coil, the closer the circuit is to a short, and the lower its impedance and inductance.

In any case, when you see a low-output MC with a relatively generous

output (*ca* 0.5mV) and a relatively high internal impedance (*ca* 30 ohms or more), the odds are good that its designer has wound many more turns of wire on the coil and used weaker magnets. The result is a "slower," warmer sound that some listeners prefer.

If an MC has a very low output (0.2mV or less) and low internal impedance (2–8 ohms), that's been achieved with fewer turns of wire, to keep the mass down, and with stronger magnets. Fewer and fewer such cartridges are made today—there's no advantage to ultralow output. But from the late 1970s through the '80s, to achieve the lowest possible mass and the greatest speed and detail, designers such as A.J. van den Hul and Transfiguration's Seiji Yoshioka made MCs of ultralow moving mass and ultralow output because the magnets of that era still couldn't generate enough flux to produce a higher output. At the time, these ultralow-output cartridges became popular among analog "speed freaks" who had money to burn because, in addition to the high cost of the exotic cartridge, the buyer had to spend another



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small fortune to greatly *and accurately* increase the low output voltages to levels of 4–4.5mV, to properly drive the MM phono stages found in most preamplifiers of that time. Exotic transformers with coils of pure silver wire, like the one made by Mitchell Cotter at the end of the 1970s, could cost more than the cartridge itself. Even today, a used Cotter transformer can cost almost \$1000.

First-time buyers of exotic MCs back then also had to leave their comfort zone of styli that could be easily removed and replaced—virtually no MC cartridge is equipped with a user-replaceable stylus. In the slide-out design of most MMs, the cantilever, with tiny magnets attached, terminates in a square, hollow metal rod that the user inserts in a hole in the cartridge body. But a variety of factors, including the width of the coil assembly, make replaceable MC styli all but unfeasible (though Audio-Technica managed one in the 1980s). (You can read more about how MC cartridges are built in my review of the Lyra Clavis Da Capo, originally published in the April 1996 issue: www.stereophile.com/phonocartridges/496lyra/index.html.)

CLEARAUDIO MAESTRO V2 MOVING-MAGNET CARTRIDGE

Clearaudio began making moving-coil cartridges in the 1970s, and only later got into the moving-magnet business. Moving-magnet cartridge designers must now be mindful that most of today's tonearms are of medium to high mass and that therefore, to be compatible, their MMs must be of low to medium compliance and of higher mass than those of the 1960s and '70s.

At \$1200, the Maestro V2 is among the most expensive, if not *the* most expensive, MM cartridges you can buy today. Like all but one of the four other models in the V2 line, it features a resonance-optimized body of ebony. Clearaudio's specifications for the Maestro V2 are: weight of 8.4gm, output voltage of 3.6mV, channel separation greater than 30dB, channel balance less than or equal to 0.2dB, and coil impedance of 660 ohms (the last three all at 1kHz). That coil impedance of 660 ohms is *way* higher than the typical MC impedance of 4–8 ohms, the reason for which should by now be obvious: many more coil turns are required to achieve the higher output, with no mechanical price to pay—the

coils are fixed.

The Maestro V2's coil inductivity is rated at 429 millihenrys compared to the MC range of 5μH–5mH. The nominal loading resistance is the standard 47k ohms (though it's often argued, correctly, that the "nominal" accepted resistive load is a "standard" based more on convenience than on the mathematical necessity dictated by the other numbers that are part of the circuit). Once you've calculated the actual loading for your MM cartridge, you can go into your MM preamp and, if possible, substitute the correct loading resistors for the ones supplied. Most MM owners stick with 47k ohms, though because the resistive load is what damps the system's resonant frequency, it's critical.

The Clearaudio's loading capacitance is specified as 100 picofarads. While loading capacitance is not critical with MCs, it is critical for MMs because the high inductance can lower the system's resonant frequency to well within the audioband. But the relationship between inductance, capacitance, bandwidth, and resonant frequency is complex. (Again, see the Hagerman link; or, for another

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useful tutorial, visit this page of the Graham Slee website: www.gspaudio.co.uk/blog/phono-cartridge-loading-capacitor_post78.html.)

Because the specified capacitance includes the capacitive contribution of the tonearm cable, it's a good idea to know what it is, if possible, before setting the phono preamp's capacitive loading. The capacitance of most tonearm wires plus interconnect is at least 100pF (the longer the cable, the higher the capacitance); so, on average, to achieve a total loading of 100pF, the phono preamp's DIP switches should be set not to 100pF but to 0pF.

The Maestro V2 features a Micro HD stylus attached to a boron cantilever—a combination found only in Clearaudio's most expensive MC cartridges, including the Goldfinger Statement (\$15,000). The lesser MMs in the V2 line—the Performer V2 (\$400), the Artist V2 (\$600), and the Virtuoso V2 (\$900)—have aluminum cantilevers and elliptical styli.

The advantage of boron over aluminum is that boron is both far more stiff and lighter. The advantages of a Micro HD over an elliptical stylus are twofold: lower mass and improved traceability. *Traceability* is a stylus's ability to get into the groove's tightest crevices, nooks, and crannies. (*Trackability* is its ability to remain in the groove and maintain effective contact with it.) The rounder the stylus's cross section, the less well it can find its way into the groove's tighter corners. The more severe (*ie*, narrow and tall) the profile, the greater its ability to get all the way into those crevices to deliver all of the detail the recording contains, especially the clean reproduction of high-frequency transients.

A severe stylus profile has another advantage. Think of a sinewave viewed from the side (a hill), negotiated by a round stylus (a disc). The disc moves to the top of the hill on its leading circumferential edge, but instead of immediately starting back down the hill, there's a pause as the front of the disc, which has just negotiated the uphill climb, hands the job off to the disc's rear edge for the ride down the hill's other side. The larger the circle's diameter, the longer it takes for the circle's trailing edge to begin the downward journey. The pauses of the handoffs at each crest of the groove, in both the vertical and horizontal dimensions, produce audible timing errors.



The Maestro V2 features a Micro HD stylus attached to a boron cantilever.

Now imagine squeezing the circular disc into an ellipse, to narrow the distance between the stylus's leading and trailing edges. The advantages of a stylus of such shape, which has a narrower "contact patch" than a spherical stylus, should be obvious. Now imagine a stylus with a severe profile that results in an even smaller contact patch. A stylus of this shape can reach deeply into crevices of the groove while producing an almost instantaneous handoff at the crest of each "hill."

The physical differences and distances may be microscopic, but the sonic consequences are enormous. However, to get the full benefits of a severe stylus profile, you must take greater care in setting the overhang, zenith angle (groove tangency), and, especially, the stylus rake angle (SRA). If the stylus's vertical ridge inaccurately traces the groove's vertical modulations by banging against them instead of sliding smoothly up and down them, it will produce large amounts of audible intermodulation distortion (IM). Therefore, while severe stylus profiles—*eg*, the Micro HD, Geiger, Replicant, and Shibata—have obvious advantages, unless *all* of these parameters are properly set, the disadvantages can outweigh the advantages—whether in an MC or an MM.

Other ways in which the Maestro V2 resembles an MC cartridge: Its stylus can't be replaced by the owner, and it tracks at a relatively heavy 1.8–2.6gm (2.2gm optimal). And like Clearaudio's MCs, the Maestro V2's unprotected cantilever protrudes from

the front of its ebony body, with zero margin of error for an errant finger swipe. I hear you loud and clear:

"Why should I buy a \$1200 Maestro V2 moving-magnet cartridge when I can buy a \$1200 moving-coil with many of the same advantages and disadvantages?"

Well, if you have an MM phono stage that you really love, you're ready to go—instead of having to replace it or add a costly step-up transformer or head amp. Moving to a costly MC cartridge by adding a budget-priced step-up transformer or head amp usually produces a sideways move in sound quality. If the Maestro V2's sonic characteristics are MC-like, you can both step up the quality and save yourself some money.

MC Sound from an MM? I ran the Maestro V2 through the MM input of the Ypsilon VPS-100 phono preamplifier (\$26,000). But to keep things in the real world, I did most of my listening through the Graham Slee Era Gold Mk.V phono preamplifier (\$999).

The Maestro V2 didn't have the speed or high-frequency extension of a good moving-coil, but it had other equally attractive—some might say *more* attractive—qualities, and in some ways its sound did resemble that of an MC.

If you like a combination of midband richness, openness, and detail, the Maestro V2 delivered. In a single listening session, I sat through all six LPs of Oscar Peterson's *Exclusively for My Friends* (MPS 0209478MSW) and suffered neither fatigue nor boredom as the Maestro V2 reproduced the piano's rich, woody tonality without exaggerating or greatly softening transients. Yes, some far more expensive MCs can enhance transients and better capture the woody sustain, as well as give you longer decays and thus a greater sense of space. But this set was recorded in Hans Georg Brunner-Schwer's "private studio"—his living room, I think. There isn't much space to lose.

Not as well resolved was the cymbal shimmer produced by Peterson's various drummers (Louis Hayes, Ed Thigpen, Bobby Durham), which sounded somewhat closed-in compared to the far more expensive and expansive MCs I compared the Maestro V2 to—but initial transients were fast and clean, more like an MC than an MM. The Maestro V2's ability to reproduce fast transients sets it apart

from most, if not all, MM cartridges I've heard.

I then played a superb reissue, on 200gm vinyl, of a 1978 recording of Mahler's Symphony 3 by Zubin Mehta and the Los Angeles Philharmonic, recorded in UCLA's Royce Hall by James Lock and Simon Eadon, and mastered from the original master tape by Willem Makkee (2 LPs, Analogue Productions LAP0117). It made a good case for why all audiophiles might consider adding a great MM cartridge to their arsenals, if swapping out is practical.

The tonal balance was more middle-to-rear-of-hall, but the richness and fullness of the brass and strings were to die for: well burnished, and the Maestro's ability to reproduce orchestral weight surpassed that of many MCs of any price. The horns and violins induced chills; the piccolo, clarinet, and tambourine were somewhat less impressive, but overall, the Maestro V2's speed far surpassed my expectations of MM cartridges, and made up for the loss of top-end air and extension.

Measured with a digital oscilloscope, the Maestro V2's channel separation

The Maestro V2 reproduced male voices particularly well.

of 27dB, L-R, and 28.5dB, R-L, were close to the specified 30dB; it produced a wide stage. Like Shure's V-15xMR, the Maestro V2 tracked and traced well everything I threw at it—but the Clearaudio had greater weight, depth and . . . majesty.

The Maestro V2 reproduced male voices particularly well: Its overall warmth was accompanied by the speed necessary to prevent its sound from deteriorating into baritone mud. Even Capitol's great series of recordings by guitarist Laurindo Almeida fared well—with these LPs, MCs usually have it all over MMs. Yes, Almeida's pluckings of his instrument's strings sound faster and more precise through MCs, but the Maestro V2 reproduced the body of his guitar well—again, more of a trade-off than an outright stomping.

Another great MM cartridge is Ortofon's 2M Black (\$755), but the Maestro beat it in terms of dynamics

and, especially, weight and slam—as well it should, for \$445 more. However, neither MM can match the dynamic majesty of the great—and far more expensive—MCs.

In the months I spent listening to Clearaudio's Maestro V2, I never felt I was missing anything. Instead, I was given an entirely different perspective on some very familiar recordings. Can a greater compliment be paid a \$1200 moving-magnet cartridge? ■

Michael Fremer (fremer@analogplanet.com) is the editor of AnalogPlanet.com, a website devoted to all things analogical.

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Herb Reichert, Capital Audio Fest Report, July 2014



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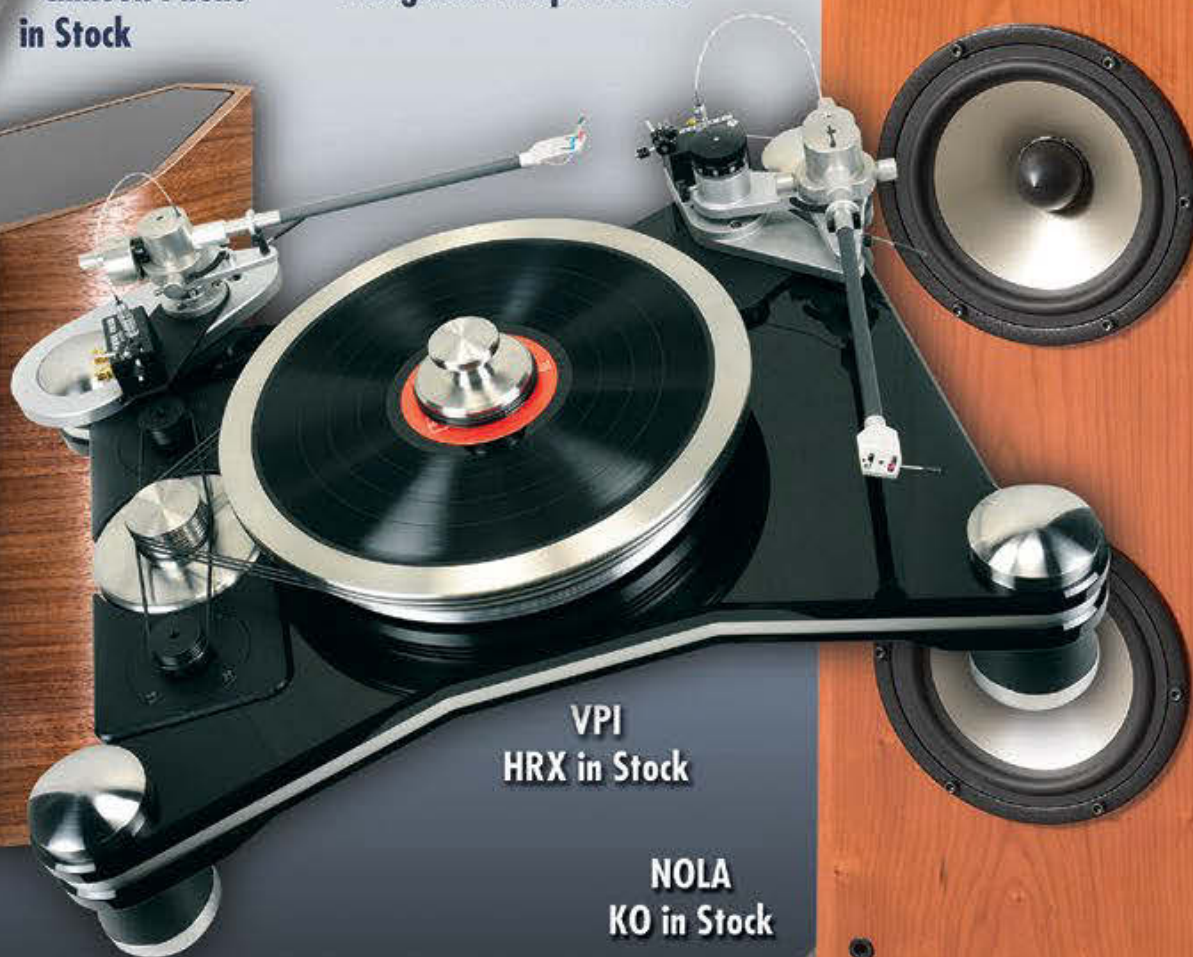


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LISTENING BY ART DUDLEY

THIS ISSUE: The glories of mono LPs played with Ortofon's CG 25 DI Mk.II mono MC phono cartridge.

One-channel wonders

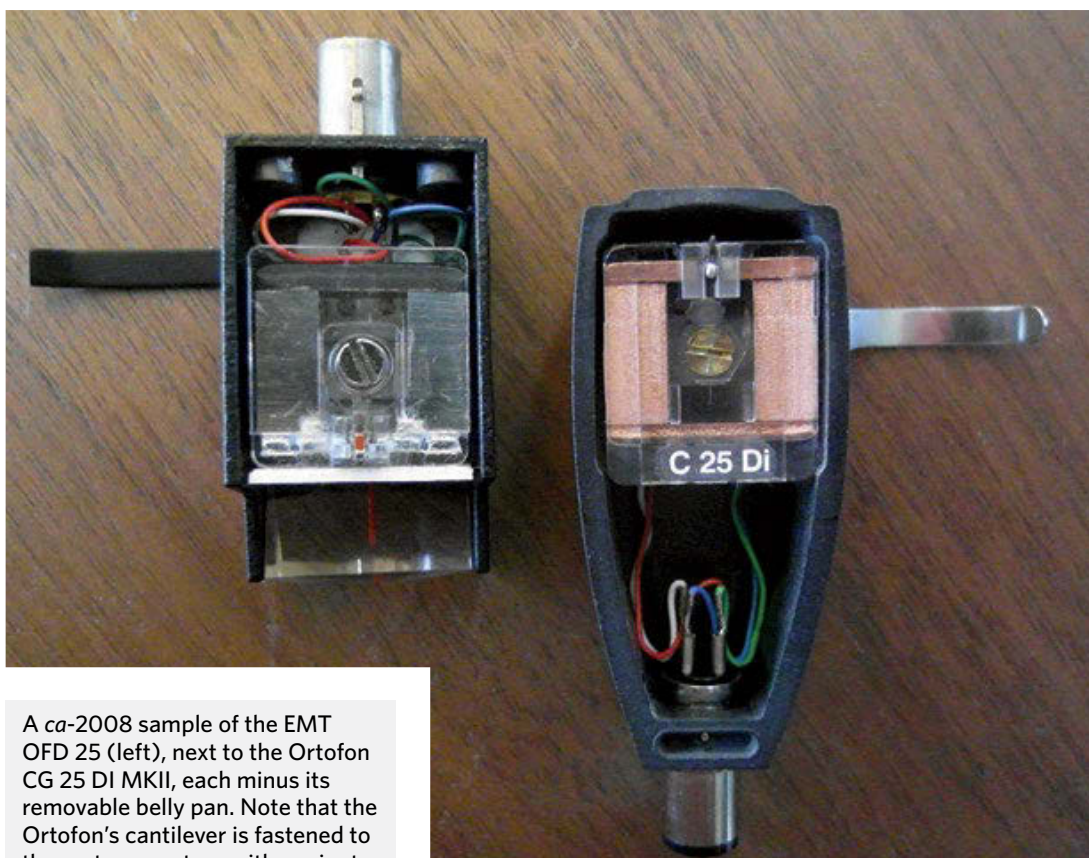
“Too much Stokowski.”
—Sergei Rachmaninoff in 1940,
reacting to a demonstration of
a stereo recording of Leopold
Stokowski conducting the Philadelphia Orchestra

I don't remember when, but at some point during the past few years I realized that, in my home, mono cartridges outnumber their stereo counterparts. A few weeks ago, my collection of phono equipment took another step in the same strange direction: After receiving from Ortofon a sample of their CG 25 DI Mk.II mono pickup head (\$902) for review, I was so impressed with its sound that I asked if I could buy the review sample. Now, having put check in mail, I own *twice* as many mono cartridges as stereo ones. Take *that*, multichannelism.

The strangeness is heightened by the fact that the CG 25 is, apparently, the oldest product presently made by the world's oldest audio manufacturer. Regarded by Ortofon as a member of their historic SPU line—this despite the fact that the *S* in *SPU* stands for stereo—the design of the CG 25 harks back to an era when all pickups were bulky, low-compliance, resolutely monophonic things. Indeed, the CG 25 reminds us that it was Ortofon from whom the German turntable manufacturer Elektro-Mess-Technik purchased *their* first tonearms and pickups: The pickups that EMT later designed and made for themselves were clearly influenced by the products of their Danish colleagues, no surer signs of which are the striking physical similarities between the Ortofon CG 25 DI Mk.II and EMT's recently discontinued OFD 25.

Like that EMT OFD 25, whose praises I've sung in this space, the Ortofon CG 25 DI Mk.II is a moving-coil cartridge with a single coil, the ends of which are paralleled to both pairs of output contacts on its stereo-compatible headshell. Also like the EMT, the Ortofon has a hefty, stiffly suspended, flat-metal cantilever, and a spherical stylus tip with a radius of 25 μ m (from which the model designations of both products derive). That size and shape of stylus is ideal for playing monophonic vinyl ranging from the very first LPs of 1948 through the mono records of the early 1960s, plus select mono records made in later years—a topic to which I'll return in a moment.

But there are differences between these two pickups, the most significant of which point to the CG 25's use of fewer



A ca-2008 sample of the EMT OFD 25 (left), next to the Ortofon CG 25 DI Mk.II, each minus its removable belly pan. Note that the Ortofon's cantilever is fastened to the motor armature with a minute dab of solder, as in olden days.

Like that EMT OFD 25, the Ortofon CG 25 DI Mk.II is a moving-coil cartridge with a single coil.

turns of coil wire: The Ortofon has a lower internal impedance (6 ohms *vs* the OFD 25's 37 ohms) and, of perhaps greater consequence, a much lower output (1.5 *vs* 5.75mV). The CG 25 DI Mk.II also has a stylus with a shank of titanium—a metal that tends to make even the diamond tip appear darker than usual, especially to the naked eye—and a headshell of wood composite press-molded into shape, then machined for a precise fit and a fetching finish.

Even before my first spin with this new-old pickup, the CG 25 gave me cause to smile: Its 1.5mV output is more in line with the

1.05mV output of my reference stereo cartridge, the EMT TSD 15. By contrast, when I use my EMT OFD 25 and OFD 15 pickup heads, I'm forced to adjust not only the playback volume of my Shindo preamp but also to change the input gain on my Shindo power amps. (My preamp and amps alike provide greater-than-average gain, a situation complicated by my use of the Hommage T2 step-up transformer, itself a source of much higher gain than other transformers to which the EMT cartridges are suited.) Without such compensation, the OFD pickup heads force me to keep the preamp's volume control scarcely above zero—a range in which stereo potentiometers perform notoriously poorly.

Used in my Thomas Schick tonearm—for which I recently made a mounting pod of its own, mounted to the plinth of my Garrard 301 turntable alongside the similarly articulated EMT 997 tonearm—the Ortofon CG 25DI

Mk.II now drives my preamp's built-in, Ortofon-friendly, Lundahl phono transformers, while the stereo EMT TSD 15 pickup continues to drive the outboard Hommage T2 transformer, itself connected to the preamplifier's moving-magnet inputs. This arrangement offers surprisingly good volume-level parity between stereo and mono. Even more important, the sonic performance of the Ortofon CG 25/Lundahl combination is exceptional: This is among the hallowed few cartridges that really communicate everything that's special about 1950s and '60s mono LPs from the likes of Verve, Prestige, Clef, Columbia, and other labels, not to mention the best contemporary mono records. For example, when playing the Electric Recording Company's mono reissue of *Mozart à Paris* (7 LPs, Pathé DTX 191-197), the CG 25 uncovered as much presence and force as I've heard from those strangely dry recordings. And while it didn't shy from putting across the overly piquant tone that affects some of the original recordings in that set, neither did the Ortofon render those selections harsh or strident. Similarly, the CG 25 pulled

huge amounts of color and texture from my favorite Verve jazz LPs, including *The Jazz Soul of Oscar Peterson* (Verve MG V-8351)—with which the Ortofon also showed off its ability to all but ignore even the most severe surface noise.

The EMT OFD-series pickups, when used with the Hommage transformer,¹ remain the most vivid and tactile mono pickups I've heard, but the CG 25 DI Mk.II delivers nearly the same level of performance for a much lower price. Now I save my own OFDs for those special Mono Weekends when I change my system settings to accommodate them, and for everyday listening I use the new Ortofon—which is anything but commonplace.

Music of the sphericals

"Mono is literally half the information in a mix."

The source of that wisdom, which I recently read on Facebook, was a man who identified himself as a "sound engineer," and who wondered why anyone would want to "force" a high-end music system to play mono. I didn't join the conversation, partly

because I'm not very good at hiding my contempt for ill-informed people who pass themselves off as experts—of which the online world has no shortage—and partly because, by saving my opinions for this space, I can be paid for expressing them. *Ka-ching* is the rare noise that sounds equally good from one loudspeaker or many.

As recently as a year ago, I could have forgiven even the most ignorant experts for misunderstanding monophonic sound—which is, of course, the technological basis of all commercial music recordings made before 1954, and of a great many others made between then and the late 1960s. But forbearance has its limits. Not only did the LP record emerge as the music industry's surprise hit of 2014—according to Nielsen SoundScan, between January and June of last year, vinyl sales showed a 40% increase over the same period in 2013—but brand-new reissues of

¹ Interestingly, the combination of CG 25DI Mk.II and Hommage T2 transformer was nothing special: good but not great. Ortofon's own mono-specific ST-M25 step-up transformer (\$600) sounded quite good with the CG 25, but didn't have quite the bass weight as when I used the Ortofon pickup through the stock Lundahls.

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historic mono recordings accounted for a notable share of that success.

Late last year, the holiday-season catalogs and promotional e-mails I received from my favorite vinyl pushers included dozens of new mono reissues, from such artists as Bob Dylan, Sonny Rollins, Wilhelm Furtwängler, János Starker, Duke Ellington, Lester Young, Django Reinhardt, Jascha Heifetz, John Coltrane, Coleman Hawkins, Miles Davis, Otis Redding, the Beach Boys, and, of course, the Beatles. Some are records that were never released in anything *but* mono—Furtwängler and Reinhardt, for example, died before stereo LPs became a commercial reality—while others, such as the latest waves of Beach Boys and Beatles reissues, are the mono versions of records that



An original Ortofon mono cutterhead, with ruby cutting stylus in place, photographed at the Electric Recording Company studios, in London.

many of us have long enjoyed in stereo.

In fact, following the publication of my column on those Beatles reissues (“Listening,” December 2014), I heard from a number of readers, virtually all of whom wanted to know the same

thing: *Do I have to buy a mono cartridge to get the most out of these new mono LPs?* The answer depends in part on the phono gear one already owns, and in part on one’s taste in

sound—and, to put it bluntly, on what it is one hopes to get from those records. The last of those things is the easiest to address: In creating the mixes from which their mono records were mastered, the Beatles and their engineers—and other artists and engineers with multitrack facilities at

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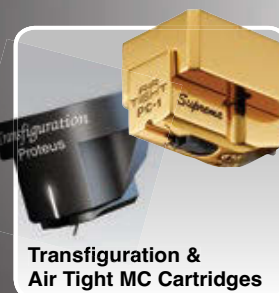
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their disposal—often chose different single-track playback levels, applied different effects, and selected different performance *takes* from the ones used to make their stereo mixes. For the enthusiast who wishes, above all else, to hear and enjoy those distinctions, a dedicated mono phono cartridge is not a necessity.

Having said that: When the choice existed, those same artists and producers often pointed to mono as the sound in which they wanted their music to be clothed. Even now, audio enthusiasts and record collectors praise the same qualities that appealed to the artists of the day: Mono LPs tend to offer considerably more substance and impact—more sonic flesh and blood—than their stereo counterparts, which can sound wan by comparison.

And to wring from today's mono reissues those selfsame qualities, it does, in fact, help to have a mono cartridge in your analog arsenal. The primary reason: A mono record groove has only horizontal modulations, and is designed to move a stylus only in that plane. Thus, a *true* mono cartridge outputs a signal only in response to horizontal stylus movement and, one hopes, is unresponsive to vertical stylus movement—the likes of which can result from mastering and pressing imperfections, or from the *pinching* effect caused by narrowing of the groove during high-frequency passages. Everything that's good and holy about mono playback is diluted by the addition to the lateral signal of nonlateral ephemera.

For that and a few other very good reasons—which I'll get to in a moment—a mono cartridge will always outperform a stereo cartridge at extracting from a mono record the more musically convincing sound. That said, there's no sense getting your hopes up if your current system isn't amenable to such changes. First and foremost, if you have but one turntable and tonearm, and if neither the headshell nor the armtube of the latter can be easily removed and exchanged, an auxiliary phono cartridge is impractical: Though it pains me to say it, unless you're willing to reinstall and realign your cartridge every time you want to switch from stereo to mono or back again—something even I am not willing to do!—there's really no sense in buying a mono pickup. Better you should save for an affordable auxiliary record player that can be dedicated

A mono cartridge will always outperform a stereo cartridge at extracting from a mono record the more musically convincing sound.

to your single-channel purposes—or plan to upgrade, if possible, to an appropriate tonearm.

Wide load

A different and altogether trickier consideration awaits the budding monophile: The grooves of most contemporary mono reissues are not always the same size or shape as the grooves of the majority of original-issue mono LPs. In the words of the protagonist of a popular children's television series: "Ruh-Roh."

According to the International Electrotechnical Commission's (IEC) first-edition IEC-98 bulletin of 1958, the standard for the earliest mono LPs was a minimum groove width of 55µm, with a bottom radius of 7.5µm (anecdotal evidence suggests that the latter was sometimes larger). By 1963, in a bulletin devoted primarily to specs for the then-newish stereo LP, the Recording Industry Association of America (RIAA) maintained the recommendation for a groove width of 55µm for mono, 25µm wide for stereo, and a bottom radius of 5µm for both. Just a year after that, the IEC renewed its standards to recommend groove widths of 55µm for mono grooves and 25µm for stereo, this time with a bottom radius of 4µm for both.

So it would *seem* that, throughout at least 1964, record-mastering engineers were cutting differently sized grooves for mono and stereo records—and, at the same time, that mono cutterheads and cutting styli were keeping pace with their stereo counterparts in terms of size and shape. (The cutterhead and its stylus determine the bottom radius of the groove cut into a lacquer, while the width of the groove can be determined by both the cutterhead *and* the cutting lathe, especially inasmuch as the latter gives the mastering engineer control over the vertical position of the cutterhead relative to the lacquer.)

Technical standards are one thing, reality quite another—especially in an

industry in which the number of units sold counts for everything, and where engineers lack faith in the consumer's ability to give a statistically significant number of fucks. According to veteran mastering engineer Steve Hoffman, the grooves of mono records from even the format's glory days did not always adhere to industry standards: "Capitol in 1960 had lathes from 1949 commingled with later models still in use—different stylus shapes, cutting amps, etc., going back to 1949. Some Capitol LPs of that era had one side cut with a modern 1960 stylus, [while] the B side was a repress from a 1953 stylus: totally different spec. All the record companies did this. . . . I've looked at many old mono LPs down through the years, and to my surprise found that many of those cut in the '60s were done on stereo lathes, just playing back a mono tape on a stereo machine. Especially after 1964."

To further tangle the tale: Just as most LP-reissue companies seem bashful about whether their records are mastered using a digital "preview" system—as opposed to an all-analog tape-head preview, which is to be preferred, as it avoids an unnecessary digitization—so, too, have they been less than forthright in describing the gear they use to cut mono lacquers. As of today, the Electric Recording Company is the only firm that I *know* uses a mono cutterhead: I've held it in my hand. I believe that at least some of the mono reissues from the late, lamented Classic Records were also made using a true mono cutterhead—and there may indeed be more. Any such mastering companies or engineers reading this are encouraged to please let me know. Better still: Please label your products more clearly!

More than a few of today's mastering engineers create mono lacquers by using a mono recording to drive a stereo cutterhead, *sometimes* with the lathe set for a deeper, wider groove than might otherwise be the case. It is my experience that, when challenged, those engineers describe their results as being no different from a mono groove made with a mono cutterhead. I admit that I have my doubts, born in part of my natural tendency toward skepticism whenever a technician declares that this or that subtle change *makes no difference*. But I am a listener, not an engineer, and my experience of the sounds of mono LPs is more cumulative than comparative;

it is incumbent on me to keep an open mind.

In any event, the point is this: Unless the hobbyist intends to examine, under a microscope, every groove of every side of every record he or she sets out to play (apologies for putting so unfortunate an idea in the heads of some sensitive readers), there is simply no way of knowing, for sure, what size of stylus to use with what record. Sorry!

That said, I can offer a few general guidelines:

▶ If you want to enjoy some of the current crop of mono reissues, don't feel obliged to buy a mono cartridge right away. Your stereo cartridge won't hurt them, and those records will come out sounding pretty good.

▶ But if you persist in playing contemporary mono discs with a stereo cartridge and are underwhelmed, don't blame mono.

▶ If you want to enjoy only older mono LPs—say, those made before the mid-1960s, give or take a few years—then do consider a true mono cartridge, preferably with a spherical stylus with a radius no smaller than 15 μ m, and preferably used with an appropriate

If and when you do buy a true mono cartridge, don't ever use it to play a stereo record of any era.

step-up transformer. Absent such gear, you simply won't hear what's so great about those records.

▶ The above applies also to those companies whose records are mastered using a true mono cutterhead—again, as opposed to a more modern stereo head summed for mono. At this time, the Electric Recording Company remains the only such company of which I'm aware—but, as suggested above, this space is open to anyone who writes in with a correction and a photo of their mono cutterhead.

▶ If and when you do buy a true mono cartridge, don't ever use it to play a stereo record of any era: You will damage the record's groove—and, as even the laziest engineer will acknowledge, *that* damage *does* make a difference.

▶ The use of a 25 μ m-radius stylus to

play a contemporary mono record mastered with a modern stereo cutter head *may* not result in damage to the groove, but that's a chance I would not care to take. If your mono diet is to be split between old and new records, and if your budget allows for only one mono cartridge, choose one with a spherical stylus that has a radius of 15–18 μ m. My favorite candidates include the superb range of true mono cartridges from Miyajima Labs. ■

Art Dudley (art.dudley@sorc.com) takes care of his prized mono LPs in soon-to-be-bucolic upstate New York.

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THE FIFTH ELEMENT

BY JOHN MARKS

THIS ISSUE: DHDI's Hanson Hsu and his intriguing desert-island picks, Tellurium Q's Black XLR cable, and more.

Quantizing Hanson Hsu

As a film title, *Quantizing Hanson Hsu* might not rank up there with *Kissing Jessica Stein*, but we work with what we have to work with. Hanson Hsu is the principal designer at Delta H Design, Inc., an acoustics and architecture firm based in Marina del Rey, California. Though he dabbles in some weird science, Hsu doesn't wear a white lab coat, literal or figurative. He's down-to-earth and personable, with a conversational style that evinces warm wit and a real love of music. At one point in our conversations, he exclaimed, "I get so much *joy* when things sound good."

Hsu's background includes writing his bachelor's thesis in Creative Sound Technology at SUNY Binghamton, work in sound reinforcement for theatrical and musical performances, teaching in the theater department of Cornell University, and positions as chief engineer at professional loudspeaker manufacturer Westlake Audio and in postproduction at Sony Pictures' Cary Grant Theater, where he worked on *Armageddon* (1998). DHDI, founded in 1997, has designed or renovated audio facilities for Universal Music Group, Sony Pictures, and others.

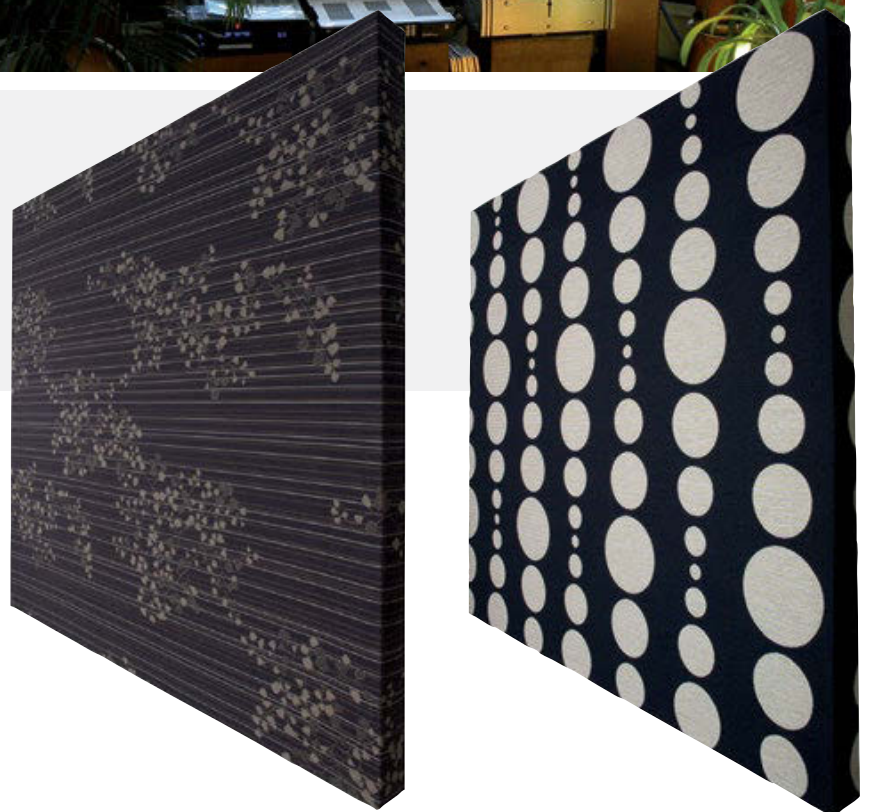
In the holiday gift guide in my December 2014 column,¹ I included about \$2100 worth of DHDI's Zero Reflection (ZR) products: two ZR Micros (\$599 each), which are conventional-looking panels measuring 24" by 24" by 1.25", wrapped in gray fabric, to be placed directly behind the speakers; and three ZR Sample Rate 8 Bit panels (\$299 apiece), each 20" by 40" by 0.75" thick and made of CNC-milled MDF, between and above the speakers. According to Hsu, those were the bare minimum needed to achieve an appreciable improvement in my listening room's sound. He was right: The ZR panels improved the sound. Appreciably. I *loved* it. Indeed, I was taken aback at how much of an improvement I heard, given the small total area of acoustical treatments installed: 24.7 square feet.

The name "ZR Sample Rate 8 Bit" is an inside joke. In response to my query about what digital-audio quantization bits have to do with what seems to me to be a diffusion panel, Hsu revealed that the CNC machine tool that DHDI uses to carve out the panel's unique terraced ridges is $\frac{1}{8}$ " in diameter: a $\frac{1}{8}$ " bit. Those ridges end up making each 8 Bit panel look like a 3D topographic model of terraced rice paddies cut into a hillside.

The ZR Micro panels aren't just foam wrapped in fabric. Each weighs about 10 lbs and has a plywood backing. They can be ordered wrapped with fabrics from contract vendors Knoll, Maharam, or Luna. DHDI offers ZR Micros in various Room Packages: the Classic (20 panels), the Plus (40



DHDI's fabric-wrapped ZR Micro panels at right, and in JM's room with Sample Rate 8 Bit panels above and between the speakers.



panels), and the Virtuoso (66 panels). Since the single-panel price is \$599, unless there's a package discount, the price of the Classic Room Package would be \$11,980, plus nontrivial shipping charges.

DHDI's approach to room treatment, by its very nature, makes A/B comparisons difficult and, it seems to me, of little value. That's primarily because DHDI's 10 years or so of laboratory research, carried out with the assistance of outside scientists, and their in-the-field applications have convinced Hsu that the most problematic early reflections of sound are the frequencies bounced off the wall behind the speakers, which the listener faces while listening: *ie*, the room's front wall.

Hsu says that it's helpful to envision a speaker's radiations in all directions, while remembering that the sonic output

¹ See www.stereophile.com/content/fifth-element-88.

from a speaker's sides, top, and rear—even at listening positions that directly face any of those surfaces—consists of only bass and midrange frequencies, no treble. Reflecting that unbalanced sound back into the listening space can double the initial tonal imbalance. DHDI's method of dealing with the problem of front-wall reflections is to place its acoustical treatments directly against the front wall and the loudspeakers as close to that wall as possible, with, as Hsu said, "the cables that come out of the loudspeakers right up against the acoustical panels." Which means simultaneously changing not one but two variables.

That said, with the ZR Micro panels centered behind my ATC SCM19 speakers and as close to the front wall as possible (see photo on p.36), I heard none of the ill effects I would otherwise expect from placing the speakers so close to the wall. With the room reconfigured per Hsu's instructions, the bass was not only tighter, but more powerful and subjectively deeper. This puzzled me, until I figured out that the ZR Micros were likely absorbing energy that would otherwise be reflected back to

my ears delayed in time and therefore out of phase with the direct sound from the speakers, and that such destructive interference would thus partially cancel the direct deep bass sound. Ah-ha!

I'd expected the ZR Sample Rate 8 Bit panels to increase the sense of bloom; *ie*, that more of the room's contribution would be involved in the midrange and treble. But instead of bloom, the result was a sharper sense of focus that added a feeling of richness—an increased sense of power—to Joni Mitchell's voice and piano in the title track of her *Court and Spark* (gold CD, Asylum/DCC GZS 1025). (I lost track of my mass-market aluminum CD of *Court and Spark* a long time ago, but through less-than-stellar equipment, even DCC's deluxe gold version risks making the piano sound tinny and Mitchell's voice thin.)

Dealer friend Bob Saglio dropped by to hear what I was making all the fuss about. Bob is something of a room-treatment agnostic for domestic stereo, his skepticism inversely proportional to the area of wall surface covered. He doubted that the sound of an average-size room could be transformed by only 27.4 square feet of acoustic panels.

But what he heard impressed him.

Schrödinger's Air Molecule

Schrödinger's Cat is the famous thought experiment in quantum theory that Erwin Schrödinger used to illustrate what he regarded as a weakness of the so-called Copenhagen Interpretation of quantum mechanics.² It's not often that an audio-related website brings to mind Schrödinger's Cat, but this paragraph from DHDI's site did exactly that:

ZR Technology quantizes air at the molecular level. By controlling *air* (the medium of sound), ZR controls sound before sound can occur, *creating a reality in which an air molecule can be in two places at once.* [italics added] For the first time, deviations in phase, resonant frequencies, and

2 Schrödinger never actually put a cat in a sealed box with a flask of poison gas that would be broken open by a hammer triggered by a random event of radioactive decay. Just as important, Schrödinger did not create his thought experiment to promote the idea that the cat actually exists in two states, alive and dead, until you checked up on it. Rather, he intended to highlight the problems in trying to apply quantum theory, which describes the behavior of subatomic particles, to objects and situations that occur on a more human scale.

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Perhaps a briefer way to put it might be: "There are more things in heaven and earth, Horatio / Than are dreamt of in your philosophy." (*Hamlet*, I.v)

My response to this is my usual response to audio claims that are unverifiable in some precise particular; eg, the effectiveness of a particular way of braiding or laying the fine wires that make up an audio cable: The thing we are talking about makes its contribution to the system's sound. It is what it is. Usually, I think, an outsider can't tell whether the contribution to the sound made by a new interconnect or a new acoustical panel is *because of* or *despite* a claimed design feature of that product. And for me, in the last analysis, which it is doesn't really matter.

A key concept is that DHDI defines the resolving power of an

acoustical treatment of a given area by the number of nonparallel surfaces in that area. As the number and thus the proportion of nonparallel surfaces increase, the panel's effect is claimed to change phase, from operating on the wavelength to operating on the air itself, as alluded to in the quote above. Hsu says that anyone who removes the fabric from a ZR Micro panel will see "a lot of nonparallel surfaces in a very complex aperiodic array." The workings of the ZR Sample Rate 8 Bit panels are in plain sight.

DHDI has applied for a patent for some of their technology. The mechanics of that process permitting, a white paper explaining the technology may be posted on their website by the time you read this.

The practical takeaways from my wide-ranging conversation with Hanson Hsu are: For home listening environments, spending about \$3500 on ZR acoustical treatments will provide worthwhile benefits—but only for a small listening sweet spot. DHDI's design paradigm for studio environments is to "quantize" the air at the walls to remove all of the walls' effects on the sound, so that you

hear only the direct sound from the speakers' front baffles. DHDI's goal is to design out that one-person sweet spot. To achieve that requires covering about 50% of the room's surfaces with ZR Micro panels. With those panels costing about \$150/square foot, that gets pricey fast.

Hsu claims that a room fully treated with ZR panels will leave the speakers to reproduce the music as it was actually recorded. He says that a fully treated room does not change the recorded sound "in any human-threshold way you can perceive. You get the room pressurization from the bass that is built into the recording, and the room is not adding or detracting."

Hsu says that DHDI does not claim to have solved "the problem of the two acoustics": the superimposition of the sound of the recording environment on the sound of the playback environment. Rather, he says that that is what DHDI's happy clients are saying. Indeed, the Testimonials page of DHDI's website is full of praise from a wide range of engineers and musicians.

I presented to Hsu a hypothetical case: a 19' by 13' post-and-beam room

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with 10'-high sidewalls and a peaked ceiling, housing a pair of Sonus Faber Amati Futura speakers driven by Audio Research electronics. Short of the 50% coverage target, Hsu believes that the Pareto-optimal (my phrase) ZR Technology installation for an ambitious home listening room of this size would cost between \$15,000 and \$25,000. However, he also said that the "ultimate experience" would require spending \$50,000 or more. What spending more gets you is even more of the music as it was recorded, with fewer of the room's sonic fingerprints on it—and a much wider sweet spot.

I recommend that anyone contemplating spending a substantial sum of money on room treatments invest the price of an airplane ticket and a brief hotel stay to visit and listen to a completed DHDI installation.

That Desert Island List

In view of Hanson Hsu's eclectic tastes, I allowed him a Baker's Dozen selections, as follow. As for the criteria by which to select recordings, Hsu and I were on the same page: personal significance trumps audio quality or importance to music history.

A few of his picks were not at all surprising: Miles Davis's *Kind of Blue* (Columbia/Legacy), the Dave Brubeck Quartet's *Time Out* (Columbia/Legacy), Steely Dan's *Gaucho* (MCA), and Joni Mitchell's *Court and Spark* (Elektra/Asylum). He also wanted a Doobie Brothers greatest-hits collection (Rhino, but there are others), as a memento of his years of working in live-sound reinforcement during that golden age of rock.

Other rockish albums on Hsu's list were Rage Against the Machine's eponymous first (Epic), Thomas Dolby's *Aliens Ate My Buick* (Manhattan/EMI), and Sarah McLachlan's *Fumbling Towards Ecstasy* (Arista). One pick almost defied categorization: Robert Miles and Trilok Gurtu's *Miles Gurtu* (Salt), which is ambient, improvisatory, and experimental, and which Hsu singled out for its sound quality, especially "Soul Driven."

From the classical side of the aisle comes Colin Davis's 1966 recording of Handel's *Messiah* (Philips). With its 40 choristers and 39 instrumentalists, this was one of the earliest—perhaps the earliest—historically informed

reconsiderations of Handel's most famous oratorio, performances of which had grown somewhat bloated over the previous 200 years.

Two opera picks bring the total up to 13: Luciano Pavarotti and Joan Sutherland's recording of *La Traviata* (Decca), with Richard Bonyngue conducting the National Philharmonic—even though it was recorded in 1979, after the close of Pavarotti's golden first decade (1961–1971). He first sang with Sutherland in 1963, on a tour of Australia, a hugely important career break he got partly because the 5' 9" Sutherland wanted a tenor taller than herself.

Hanson Hsu's lucky pick 13 is the soundtrack of *The Fifth Element* (Virgin), particularly for the track in which the Diva Plavalaguna (Milla Jovovich), an alien, sings a selection from Donizetti's *Lucia di Lammermoor*. Director Luc Besson, it turns out, is a Maria Callas fan. However, because Besson's favorite version, Callas's live 1955 mono recording, is sonically unsuitable for use in a modern film, Albanian soprano Inva Mula came highly recommended as being the next best thing.

A VERY RESPECTABLE CABLE CONTENDER

A relatively new entrant in the crowded market of audio cables is Tellurium Q, founded in Somerset, England, by chemist and materials scientist Geoff Merrigan and engineer Colin Wonfor. Wonfor's résumé includes consulting work as an amplifier designer for Naim and Cambridge Audio. Merrigan and Wonfor's meeting at a UK recording studio led to a discussion of what the weak links in the studio's signal chain might be. Wonfor convinced Merrigan that there remained room for improvement in cable design.

Tellurium Q's design approach is iterative—they claim to have discovered no single magic bullet. Instead, they say they devote significant time and money to R&D. Merrigan states on the company's website, "Research is our passion and our customers are the beneficiaries of this." They seek to mediate among the impacts of metallurgy, cable geometry, dielectric materials, and connectors. Merrigan: "When you understand what a signal actually may be and can model the way it is likely to behave . . . it is then time to do a bit of a balancing act."

What Merrigan is talking about is a concept I'm very familiar with, and have heard expressed by more than one audio designer. My favorite ways of putting it are: "You squeeze it *here* and it bulges out *there*," and "To get *this*, you have to give up *that*."

In making such judgment calls at each step of the design process, Tellurium Q's self-proclaimed Prime Directive is to minimize phase

distortion. That said, Tellurium Q's website is very short on specifics as to how they go about doing so. That's understandable, and I don't have a problem with it.

Tellurium Q makes interconnects (single-ended and balanced), speaker cables, and power cords, in three product families: Blue, Black, and Silver, with two or three levels of price within each family. I received,



Tellurium Q's "Black" balanced interconnects are from the middle of its three product lines.

from US importer Fidelis High-End Home Audio & Theater balanced interconnects (XLR) from the lowest price level of the middle family, Black (\$500/1m pair).

Tellurium Q's Black interconnects appeared well made, and were neither remarkably rigid nor remarkably flexible. The presentation is definitely anti-snob: plain black cables in a box of plain white cardboard, with text in one color silkscreened onto it. I think the message they're trying to send is that the value of the cable lies in its sound, not in the "ownership experience" of pulling up a satin ribbon to open a velvet-lined hardwood box.

After some break-in (assisted by Ayre Acoustics and Cardas Audio's *Irrational, But Efficacious! System Enhancement Disc, Version 1.2*), as a starting point I compared the Tellurium Q Blacks with another pair of balanced interconnects: Canare's cheap'n'cheerful L-4E6S, with Neutrik black and gold-pinned XLRs, from Markertek (ca \$45/pair, including shipping).

The Tellurium Q Blacks sounded quieter and far less closed-in at the top than the Canares, as revealed by the tape hiss, ca 1956, in "Easy to Love,"

from Ella Fitzgerald's *The Cole Porter Songbook, Volume Two* (CD, Verve 821 990-2). With that track, the Canares acted as a rather obvious tone control. Overall, the Tellurium Q Blacks did a much better job of representing the middles of piano notes, and of doing justice to Fitzgerald's voice without overemphasizing her sibilants.

My listening impressions of the Tellurium Qs were very favorable. The Blacks were on the slightly warm or musical side of neutral, and in that regard reminded me of any number of celebrated British audio products, such as Harbeth's P3ESR, their current variation on the BBC's LS3/5A minimonitor. The noise floor was very low, with a very "black" background, and the quality usually called transparency was certainly present but not maxed out—as in a flat-panel TV with its edge definition turned all the way up.

Then, in an unfair comparison, I replaced the Tellurium Q Blacks with Cardas Clears (balanced), which, at over \$2000/pair, cost more than four times the Blacks' price. No, the Blacks didn't have the Clears' frequency extension, dynamic freedom, musical

authority, or top-to-bottom sense of *thereness*. However, the comparison did point out that there was more than a slight resemblance in the basic sound of both interconnects—and, just as important, that the errors or shortcomings I heard in the Tellurium Q Blacks were all sins of omission, not commission. Moreover, the Blacks are the lowest-priced of Tellurium Q's middle family of products. Choosing one of Tellurium Q's top-end cables might well have closed the performance gap to some degree.

Tellurium Q's lack of a story to tell, or of some sort of secret sauce, is, in its own way, refreshing. Their balanced Black interconnect made a favorable sonic impression and presents a favorable value proposition. Of course, the most important factor in audio is the interface of the speakers with the room, and the second most important is the amplifier's ability to satisfy the electrical demands, quirks, and whims of the speakers. It's not a cable's fault if it can't smooth out the rough spots in *every* system's sound. That said, if you're shopping for an entry-level premium cable, Tellurium Q's Black line is well worth exploring.

FOR DEEP-CATALOG CLASSICAL COLLECTORS

An off-the-beaten-path CD recommendation: a collection of monophonic recordings of violinist Nathan Milstein (1904–1992) made by RCA from 1949 to 1951, a nearly forgotten phase of Milstein's career (CD, Naxos Historical 8.110975). The CD includes the Dvořák Violin Concerto, with Antal Doráti and the Minneapolis Symphony Orchestra; Glazunov's Violin Concerto (which Milstein had performed in the composer's presence in 1923), with the RCA Victor Symphony Orchestra conducted by William Steinberg; and an Adagio, K.261, and a Rondo, K.373, by Mozart, with Vladimir Golschmann and the RCA Victor Symphony Orchestra.

Milstein's 1957 stereo recording of the Dvořák concerto (Steinberg/Pittsburgh SO; Capitol/EMI) is a landmark recording prized on vinyl old or new. I was taken aback at how much more idiomatic and openheartedly expressive I found the Doráti/Minneapolis, which predates it by six years. I can't help but think that I now find the 1957 recording lacking in comparison because, perhaps being



a labelmate of Heifetz's at RCA had convinced Milstein that he had to amp up the energy level in his playing, if only for competitive and not musical reasons. Or perhaps it was simply a matter of Doráti being a better conductor of Dvořák.

The Glazunov is good clean fun, and the Mozart pieces glow with aristocratic refinement. The 1951 sound isn't bad, but compared with the famous later stereo releases, it's a bit boxy and lacks high treble extension. However, Milstein's fabled violin tone is very much front and center. This

CD is available only as an import (try eBay), most likely because the recordings may be public domain in Europe but not in the US. ■

John Marks (john.marks@sorc.com) loves pausing to listen.

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Four years ago, Pangea Audio decided to develop a low price power cable as an upgrade to the cheap power cables that came in the box with nearly all high-end audio gear. They asked veteran cable designer, Jay Victor, for help. Holder of more than forty patents and trademarks for audio gear, Jay Victor has designed high-end audio cables

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PRESENTS

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RECOMMENDED COMPONENTS

one of the magazine's writers and editors has had continued experience with them. Discontinuation of a model also precludes its appearance. In addition, though professional components—recorders, amplifiers, monitor speaker systems—can be obtained secondhand and can sometimes offer performance that would otherwise guarantee inclusion, we do not generally do so. *Stereophile's* "Recommended Components" listing is almost exclusively concerned with products currently available in the US through the usual hi-fi retail outlets.

HOW RECOMMENDATIONS ARE DETERMINED

The ratings given components included in this listing are based entirely on performance — ie, accuracy of reproduction — and are biased to an extent by our feeling that things added to reproduced sound (eg, jitter, distortion, colorations of various kinds) are of more concern to the musically oriented listener than are things subtracted from the sound (eg, deep bass or extreme treble). On the other hand, components markedly deficient in one or more respects are downrated to the extent that their deficiencies interfere with the full realization of the program material.

We try to include in "Recommended Components" every product that we have found to be truly excellent or that we feel represents good value for money. Bear in mind that many different tastes are represented. The listing is compiled after consultation with *Stereophile's* reviewing staff and editors, and takes into account continued experience of a product after the formal review has been published. In particular, we take account of unreliability and defects that show up after extended auditioning. The fact that a product received a favorable review cannot therefore be regarded as a guarantee that it will continue to appear in this listing.

The prices indicated are those current at the time the listing was compiled (January 2015). We cannot guarantee that any of these prices will be the same by the time this issue of *Stereophile* appears in print.

There is a near-universal consensus that at some point in the upward climb of component prices, severely diminishing returns (performance versus price) set in. However, there is no agreement as to the exact price level at which that takes place. Where we have found a product to perform much better than might be expected from its price, we have drawn attention to it with a \$\$\$ next to its listing. We also indicate, with a ★, products that have been on this

THE COMPONENTS LISTED HERE HAVE BEEN FORMALLY REVIEWED IN

Stereophile and have been found to be among the best available in each of four or five quality classes. Whether a component is listed in Class A or Class E, we highly recommend its purchase.

Each listing — in alphabetical order within classes — is followed by a brief description of the product's sonic characteristics and a code indicating the *Stereophile* Volume and Issue in which that product's report appeared. Thus the May 2014 issue is indicated as "Vol.37 No.5."

Some products listed have not yet been reported on; these are marked (NR), for "Not Reviewed." We recommend that you read any product's entire review before seriously contemplating a purchase (products without reviews should therefore be treated with more caution)—many salient characteristics, peculiarities, and caveats appear in the reviews, but not here. To obtain back issues of the magazine, visit our website: www.stereophile.com. We regret that we cannot supply photocopies or e-mail copies of individual reviews. All full reviews are reprinted in our website "Archives" Section: these are marked "WWW." More are added each week, so check the on-line listing.

In general, components do not remain listed for more than three years unless at least

list in one incarnation or another since the "Recommended Components" listing in Vol.35 No.4 (April 2012). Longevity in a hi-fi component is rare enough that we think it worth noting (although it can also indicate that the attention of design engineers has moved elsewhere).

We are not sympathetic toward letters complaining that the Symphonic Bombast A-123 that we recommended heartily two years ago no longer makes it into "Recommended Components." Where deletions are made, we endeavor to give reasons (there are always reasons). But remember:

Deletion of a component from this list does not invalidate a buying decision you have made.

Individual reviewers mentioned by their initials are: John Atkinson, Jim Austin, Paul Bolin, Lonnie Brownell, Martin Colloms, Brian Damkroger, Robert Deutsch, Art Dudley, Michael Fremer, Larry Greenhill, Jon Iverson, Fred Kaplan, Michael Lavgna, Erick Lichte, John Marks, Stephen Mejias, Paul Messenger, Thomas J. Norton, Wes Phillips, Herb Reichert, Bob J. Reina, Kalman Robinson, Markus Sauer, Jonathan Scull (J-10), Chip Stern, and Sam Tellig.

HOW TO USE THE LISTINGS

The classes each cover a wide range of performance. Carefully read our descriptions here, the original reviews, and (heaven forbid) reviews in other magazines to put together a short list of components to choose from. Evaluate your room, your source material and front-end(s), your speakers, and your tastes. With luck, you may come up with a selection to audition at your favorite dealer(s). "Recommended Components" will not tell you what to buy any more than Consumer Reports would presume to tell you whom to marry!

CLASS A

Best attainable sound for a component of its kind, almost without practical considerations; "the least musical compromise." A Class A system is one for which you don't have to make a leap of faith to believe that you're hearing the real thing. With Super Audio CD, DVD-Audio, and Hi-Res PCM and DSD files now available, we have created a new Class, A+, for the best performance in those digital categories. Class A now represents the best that can be obtained from the conventional 16/44.1 CD medium. We also created Class A+ categories for turntables and phono preamps, to recognize the achievements of the Continuum Caliburn and Boulder 2008, respectively.

CLASS B

The next best thing to the very best sound reproduction; Class B components generally cost less than those in Class A, but most Class B components are still quite expensive.

CLASS C

Somewhat lower-fi sound, but far more musically natural than average home-component high fidelity; products in this class are of high quality but still affordable.

CLASS D

Satisfying musical sound, but these components are either of significantly lower fidelity than the best available, or exhibit major compromises in performance—limited dynamic range, for example. Bear in mind that appearance in Class D still means that we recommend this product—it's possible to put together a musically satisfying system exclusively from Class D components.

CLASS E

Applying to "Loudspeakers," these are entry-level products.

CLASS K

"Keep your eye on this product." Class K is for components that we have not reviewed (or have not finished testing), but that we have reason to believe may be excellent performers. We are not actually recommending these components, only suggesting you give them a listen. Though the report has yet to be published in certain cases, the reviewer and editor sometimes feel confident enough that the reviewer's opinion is sufficiently well formed to include what otherwise would be an entry in one of the other classes, marked (NR).

TURNTABLES

Editor's Note: We strongly recommend those interested in LP playback visit our sister website, www.AnalogPlanet.com, which is edited by Michael Fremer.

A+

CONTINUUM AUDIO LABS CALIBURN: \$200,000 WITH TONEARM AND STAND ★

"Part New Jersey diner, part Wurlitzer jukebox," the 160 lb Caliburn is the brainchild of Mark Doehmann, whose clever, purposeful design is based on rigorous scientific methodology using finite-element analysis computer programs. While the only serious competition for the Caliburn is the Rockport System III Sirius, MF decided, "The Caliburn beat the Rockport's overall performance by a considerable margin," adding an "emotional majesty" that made the Rockport seem analytical. "Better than sex!" cried Mikey's wife, though compared to the Onedof turntable, while the Caliburn offered greater dynamics, transparency, and impact, it sounded slightly ragged and less stable, said MF. The ultrarigid Castellon stand, made of chromed, aircraft-grade aluminum, costs \$25k on its own (pheww). Stereophile's 2006 "Analog Source Component" and "Overall Product of the Year." (Vol.29 No.1, Vol.31 No.3, Vol.35 No.7 WWW)

VPI CLASSIC DIRECT TURNTABLE: \$30,000 INCLUDING TONEARM

A brand-new, US-made direct-drive turntable—in 2014? Believe it. For VPI's Classic Direct, designer Harry Weisfeld selected a \$4000 (his cost) Thin Gap motor, servo-controlled by a custom-designed active-feedback loop, which he combined with an 18-lb platter machined from a single billet of aluminum. The platter and drive system (combined weight: 27 lbs) are snugged into an aluminum-and-MDF plinth measuring 23.5" wide by 17.5" deep. To this, Weisfeld has mated a version of his tried-and-true JMW unipivot tonearm updated in both mechanical design and materials choice, this one a seamless resin creation whose existence would not have been possible even five years ago. Referring to his longtime reference table-arm combination, MF observed that "the Classic Direct with its JMW Memorial 3D-printed 12" tonearm comes as close to the [Continuum] Caliburn's sound as has any turntable, and for less than one-fifth the price." Quibbles: MF wondered if even greater performance could be had with a more sophisticated plinth, and lacked enthusiasm for the model's peripheral platter clamp. (Vol.37 Nos. 5 & 6 WWW)

A

AMG VIELLA 12: \$17,500 AS REVIEWED

Made in Germany, the Viella 12 is a belt-drive turntable with an ellipsoidal plinth of aircraft-grade aluminum; a two-piece black-anodized aluminum platter; a two-pulse, low-speed, 24V DC motor, acoustically decoupled from the plinth by five mounts of rubber and metal; and a 12" tonearm with a unique, dual-pivot, vertical bearing system. Setup was simple. Used with a Lyra Atlas cartridge, the Viella 12 produced a rich, detailed midrange; nimble, well-controlled bass; and smooth, clean highs, said MF. "An incredible value," he decided. Reviewed with AMG 12J2 12" tonearm and Cherry wood skirt. Add \$500 for piano black lacquer skirt. Price without skirt is \$15,000. (Vol.36 No.8)

AYRE/DPS: \$9250 WITHOUT TONEARM ★

In Willi Bauer's handsome dps, an aluminum plinth houses three shallow PVC cups, filled with elastomer buttons, that act as supporting springs for the rest of the turntable. The body is a laminate of six separate sheets: two layers of lossy damping material sandwiched by three sheets of Baltic birch plywood and topped with a layer of cork; the platter is acrylic. Bauer prevents energy storage by combining a resistive bearing with a high-torque AC synchronous motor, this powered by a three-phase power supply custom-made by Ayre Acoustics. Though it lacked the bottom-end heft of AD's Thorens TD-124, the dps showed unsurpassed pitch stability and revelatory soundstaging

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abilities. "A striking, innovative success," Art enthused. dps tonearm adds \$3500. (Vol.33 No.4 WWW)

BRINKMANN BALANCE: \$23,700 ★

The ready-to-play Brinkmann Balance is a plinthless 'table with an attractive, low-profile base available in a variety of sizes and configured for specified tonearm masses. Its high-tech feet are designed to effectively isolate the supporting base from horizontally and vertically induced vibrations, and its platter's speed can run at precisely 33.3 and 45rpm. Combined "deep, tight, articulate" bass performance with "the lightest, airiest, purest" soundstages to breathe new life into MF's favorite LPs, adding "greater holography of imaging but without etch." Recent upgrades include a new motor and new power-supply electronics. Adding Brinkmann's optional RōNt tubed power supply (\$4300) produced cleaner, better-articulated mid- and high-frequency transients, said MF. "The Brinkmann Balance remains one of a handful of the finest turntables being made today." Brinkmann 12.1 tonearm adds \$7500, Brinkmann EMT-ti cartridge adds \$4300. (Vol.28 No.5; Vol.35 No.4 WWW)

**BRINKMANN BARDO: \$9490
WITHOUT TONEARM ★**

The Bardo is a direct-drive, suspensionless turntable with an eight-pole, speed-controlled motor. It has a vinyl platter mat, a polished granite base, and the superbly designed and machined spindle and bearing used in Brinkmann's more expensive Oasis, La Grange, and Balance models. Fit'n'finish were outstanding, and setup was quick and simple. Though it lacked the rich, deep bass of Brinkmann's more expensive 'tables, the Bardo "produced superbly well-organized sound with clean, sharp attacks, reasonably strong sustain, and pronounced decay, all against a jet-black backdrop," said Mikey. Precision-ground crystal platter mat and screw-down record clamp now included in price; optional Balance power supply adds \$1490. (Vol.34 No.5 WWW)

**DR. FEICKERT BLACKBIRD: \$9000
WITHOUT TONEARM ★**

Easy to set up and use, the Blackbird is a mass-loaded design that can simultaneously accommodate two tonearms, each mounted on a precision-machined armboard of polyoxymethylene copolymer (POM-C). A thick slab of thermally treated MDF is sandwiched between two aluminum plates to form the Blackbird's attractive plinth, which in turn supports the 9-lb POM-C platter and houses the proprietary motor controller. The Blackbird traded bottom-end extension for rhythmic clarity, producing an overall sound that was open, uncolored, and slightly lean, said MF. Though "a likable product," the Blackbird "would be far more attractive and easier to recommend if it sold for \$1000 less," he decided. (Vol.34 No.9)

**LINN SONDEK LP12, WITH LINGO POWER
SUPPLY: \$5010+, DEPENDING ON
FINISH AND OPTIONS ★**

Compared with Linn's original Valhalla, the Lingo-equipped Sondek minimizes the LP12's propensity toward a slightly fat midbass, subjectively extending the low frequencies by another octave. The Lingo upgrade alone costs \$1810. The Trampolin suspension reduces the effect of the support. Cirkus bearing/subchassis, fitted as standard, costs \$1280 including labor as an upgrade kit, and further extends and tightens the 'table's bass, leading to a borderline Class A rating, according to MC, JA, AD, and LG (as long as a good support is used, adds MC). "A deeper, more profound silence," enthuses WP over the Cirkus mod, adding that what stunned him was "the extent to which surface noise receded into insignificance." MF agreed: "Everything its fans say about it is true: It can carry a tune, it's well-paced, and it has impressive bass extension and supple, believable bass transients." Superbly low measured rumble and excellent speed stability reinforce the feeling of maximum musical involvement offered by this classic belt-drive turntable. Good isolation from shock and vibration. While the felt mat doesn't offer the greatest degree of vibration suppression within the vinyl disc, what absorption it does offer is uniform with frequency. The Lingo'd Linn was "a big-sounding, wildly dynamic, faultlessly tuneful player that held me utterly rapt,"

said AD. In direct comparison, the Lingo-Ekos combination sounded more dynamic than the Naim Armageddon-Aro combo, AD added. "The Naim Armageddon was easy to listen to. The Linn Lingo was hard to ignore." The Keel one-piece subchassis, tonearm board, and Linn-specific tonearm mounting collar (\$3250) maintained the sonic character of AD's LP12 while adding size, richness, and detail. "To the person who understands what the player is all about, this very expensive upgrade could border on being essential," said Art, who feels that high Class B is the appropriate rating. Effects of the Trampolin base (\$250) were not as pronounced. Despite flirtations with other decks, JA remains true to the basic design he has used now for more than a quarter century. The Radikal, Linn's 2010-vintage upgrade for the LP12 (\$4250), combines a DC motor with an outboard switch-mode power supply and control unit. Housed in a shell of machined acetal and aluminum, the motor includes neodymium magnets, precious-metal brushes, and a rotor design said to virtually eliminate electromagnetic interference and magnetic cogging. While it maintained the LP12's natural warmth and superb musical flow, the Radikal presented music with greater force, momentum, and clarity, for a more satisfying and altogether easier listening experience, said AD, leading to a revised Class A rating. (Vol.7 No.2, Vol.13 No.3, Valhalla; Vol.14 No.1, Vol.16 No.12, Vol.17 No.5, Vol.19 No.2, Vol.26 No.11, Vol.28 No.2 WWW; Vol.30 No.10 WWW; Vol.34 No.6 WWW)

ONEDOF TURNTABLE: \$200,000 AS REVIEWED

The audacious Onedof (One Degree of Freedom) turntable comprises three towers, one each for the motor, the tonearm, and the massive platter bearing, the last also serving as the platter's pedestal. The self-centering bearing system has no points of solid contact and generates virtually no heat. To ensure that an LP rests flatly against the platter, the Onedof employs a massive central weight and a gold-plated platter ring. Compared to Mikey's Continuum Caliburn, the Onedof sounded smoother, silkier, and less mechanical, but lacked dynamic expression, transparency, and impact, which keeps it from Class . "I'd take a new Rega RP6 for roughly 1/100th the price," snorts ST. Sold factory direct to order only. (Vol.35 No.7)

PALMER 2.5: \$8990 IN BALTIC BIRCH

As with the designs of the late Tom Fletcher, of Nottingham Analogue, the British-built Palmer Audio 2.5 mates a massive (21 lbs) aluminum-alloy platter with an AC motor so tiny and low in torque that merely pushing the On/Off button on its outboard power supply won't set the platter spinning: The user must start it by hand. A hefty platter bearing and a similarly hefty, cantilevered, rotatable arm-mount complete the picture. Installation, though not too daunting, is not helped by disappointing documentation. Used with the Audio Origami PU7 tonearm, with which one often sees it paired, the Palmer Audio 2.5 impressed MF with its "attractive, velvety midband," "black backgrounds," and "serenity and smooth musical flow." Especially where the PU7 is the intended partner, prospective owners are urged by MF to consider cartridges that, in other settings, might be considered on the lean side of neutral. Note that a special version of the 2.5, the Palmer Audio 2.5-12, is available for use with 12" tonearms. (Vol.37 No.11)

**PEAR AUDIO BLUE - KID THOMAS WITH CORNET
TONEARM: \$5995**

From Pear Audio Analogue's Blue line of products comes the Slovenian-made Kid Thomas turntable, with its chunky wooden plinth, massive platter, and very low-torque DC motor: characteristics that betray no small influence from the products of the late Tom Fletcher, founder of Nottingham Analogue. (Those qualities also put the Kid Thomas in the same file folder as the Palmer 2.5, although Pear Audio has the distinction of having received Fletcher's direct input and guidance.) Variations on the theme include: the Kid Thomas's double-layer plinth; thick, elastic damping rings on the platter's outer edge; and the user's ability (for an additional \$1995) to upgrade from the standard wall wart to an external power supply made by Martin Bastin, a specialist in same. Used with Pear Audio's Cornet 2 tonearm, the Kid Thomas exhibited "a rich, expansive

midrange and a smooth, neutral tonal balance," according to MF. "[E]ven if a bit overprominent, that midrange was something special, with black backgrounds and tape-like musical flow and drive." (Vol.38 No.1)

SME 20/12: \$25,200, WITH 312S TONEARM ★

Among the best-built turntables in the world," the SME 20/12 is a tank-like machine weighing more than 75 lbs. It has an oversized 14.3-lb platter, and a 176-lb aluminum-alloy subchassis secured by ten O-rings for each of four suspension towers and will take 12" arms. Its three-phase, eight-pole motor uses an electronic controller to achieve precise speeds of 33.3, 45, and 78rpm. Though it lacked the bottom-end weight and macrodynamic range of even more expensive turntables, and had a slightly dry, analytical sound, the SME offered a very low noise floor and stable image specificity, said MF. Price without tonearm is \$18,500. (Vol.32 No.5 WWW)

**SPIRAL GROOVE SG1.1: \$25,000 WITHOUT
TONEARM ★**

The 75-lb SG1.1 is a remarkably dense, belt-driven, split-plinth design with an onboard AC synchronous motor driving a 22-lb platter of graphite, vinyl, and phenolic. While the SG1.1's clever tonearm-mounting system allows for simple installation of most any arm, Spiral Groove's complementary Centroid tonearm is designed for optimal system stability. Build quality was superb. Possibly the quietest turntable-tonearm combo in Mikey's experience, the SG1.1-Centroid matched black backgrounds with delicate highs, natural attacks and decays, and rock-solid bass. (Vol.35 No.11)

**SPIRAL GROOVE SG2: \$15,000 WITHOUT
TONEARM ★**

Well built, simple to set up, and bulletproof in operation, the SG2 is designed by Allen Perkins and represents an evolution of design and production capabilities from his RPM turntables. Though similar in appearance to the RPMs, the Spiral Groove uses a five-layer chassis—two thin layers of damping material separated by three aluminum plates—and a thick, anti-vibration platter comprising layers of aluminum, an impregnated phenolic, vinyl, and graphite. The bearing assembly has been optimized to eliminate radial movement and prevent stray magnetic fields from interacting with the cartridge. The SG2's dramatic timing, authoritative midrange, and superb resolution of detail worked to present music with an urgency and wave-like drive, said BD. Through the SG2, "[a recording] became a performance," he enthused. (Vol.33 No.6 WWW)

TECHDAS AIR FORCE ONE: \$105,000

"A visually stunning technological tour de force," the 174-lb Air Force One has a three-layer-damped aluminum chassis, a forge-processed stainless-steel platter, and a massive AC synchronous motor controlled by an outboard dual-50W amplifier. The platter uses an air bearing; LPs are held to the platter with vacuum suction. The review sample was equipped with a Graham Engineering Phantom II Supreme tonearm. Though it didn't sound as smooth as the Continuum Caliburn or the Onedof One Degree of Freedom, the Air Force One was sensational in terms of harmonics, space, texture, and microdynamics, said Mikey. "The TechDAS Air Force One was a sonic masterpiece," he concluded. (Vol.36 No.4)

THALES TTT-COMPACT: \$13,200

Designed and built in Switzerland by former watchmaker Micha Huber, the elegant TTT-Compact measures approximately 18" W by 3.5" H by 12" D and hides its belt and built-in motor under its 14-lb damped platter. The drive system comprises a small-diameter belt driving a grooved subplatter positioned very close to the triple-phase DC motor. A massive circular tonearm-mounting platform with integrated RCA-jack module locks securely to the main chassis via six hex-head screws. Setup was simple, but required great care to avoid damaging the exposed tonearm wires. Partnered with the matching Simplicity tonearm, the TTT-Compact produced a slightly bright overall sound, with rock-solid images, ultraclean transients, a neutral midrange, and rhythmically taut bass, said MF. A new version of the partnering tonearm, the Simplicity II (\$9200), replaces the original's ruby bearings with microball bearings, and its armtubes are more



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precisely tuned and damped. As MF wrote, "The Simplicity II performed flawlessly. Its bearing system was perfectly behaved, and seemed frictionless." MF also observed that the brightness of which he'd complained in his first review "had disappeared." (Vol.37 Nos. 1 & 12)

VPI HR-X1: \$12,000, WITH TONEARM ★

Harry Weisfeld's efforts to produce the ultimate TNT turntable include a plinth of acrylic-aluminum-acrylic laminate, an inverted bearing assembly, the addition of a perimeter clamping ring, and replacement of the outboard motor and flywheel with a single unit. Simpler, smaller, more luxuriously appointed, and better built than the TNT, the HR-X also eliminates the TNT's pervasive warmth and softened dynamic transients, to offer a much more neutral overall presentation. BD: "The HR-X struck me as a stable, inert, and nearly neutral platform that simply supports a cartridge and lets it do its job." Price includes VPI's JMW-12.6 3D tonearm (see "Tonearms"). (Vol.29 No.5 WWW)

VPI SUPER SCOUTMASTER REFERENCE RIM DRIVE: \$10,000 ★

The Super Scoutmaster Reference Rim-Drive combines the Scoutmaster's Super Platter with the Super Scoutmaster's Mini-TNT Stabilizer feet, and uses a rim-drive motor system based on the HR-X's dual-motor/flywheel module. It comes equipped with a JMW-10.5i Memorial tonearm fitted with Nordost Valhalla wire. The sound was "fantastic," with impressive bottom-octave heft and slightly warm high frequencies. "The Super Scoutmaster Reference Rim-Drive is one of the best values of the true high-end turntables now available," said MF. (Vol.32 No.2)

VPI CLASSIC SIGNATURE: \$6000 ★

Like earlier Classic models, VPI's most recent design, called the Classic at the time of review, is easy to set up, relatively compact (22" W by 10" H by 16" D), and uses a motor that has been integrated into its plinth. Refinements over earlier models include a more massive, better-damped plinth structure, newly designed feet, and an 18-lb damped aluminum platter. Though the Classic 3 wasn't as quiet as MF's much more expensive Continuum Caliburn and couldn't match the rich midrange of Dr. Feickert's Blackbird, the VPI had a clean, fast, lively sound marked by masterful attacks, outstanding microdynamics, and lifelike textures. "One of today's great values in analog audio," concluded Mikey. "I don't hear how you can go wrong buying one." Borderline Class A. Price includes the new JMW-Classic tonearm. See "Tonearms." (Vol.34 No.10 WWW)

WAVE KINETICS NVS REFERENCE: \$45,000

Made in a California factory that specializes in microrobotics, the NVS Reference is superbly built and has a dramatic physical appearance: A large sculpted pod forms a central pillar and holds the motor—a custom DC design governed by a "laboratory-grade" commercial servo-controller with an active, ultrasonic feedback loop that produces a claimed speed accuracy of 1 part per million. Atop the motor is the NVS's 30-lb platter, which comprises three slabs of aluminum interleaved with two slabs of a mass-loaded white polymer. The turntable's platform is machined from billets of solid aluminum and includes a proprietary vibration-damping material. Compared to the Continuum Caliburn, the NVS Reference had similar bass extension and control, but offered slightly drier textures, muted attacks, and less dimensional images, said MF. "A top-shelf turntable that's easy to recommend," he concluded. (Vol.35 No.10)

B

CLEARAUDIO OVATION: \$6500 WITH TONEARM

Using technology found in Clearaudio's more expensive Innovation series, the elegant-looking, belt-driven, three-speed Ovation measures 16.5" W by 6" H by 14" D and weighs 34 lbs. It uses a decoupled DC motor and has a resonance optimized chassis of Panzerholz and machined aluminum, a 1.5"-thick polyoxymethylene platter, and self-adjusting speed control. More nuanced and resolving than Clearaudio's entry-level Concept, the Ovation had a smooth, cohesive, and organic overall sound that combined sweet highs, a warm midrange, and taut bass,

said EL. Compared to EL's Bel Canto digital front-end, the Ovation offered greater midbass body, but lacked some image depth and bass extension. Price without tonearm is \$5000. (Vol.35 No.10 WWW)

LUXMAN PD-171: \$6400 WITH TONEARM

The retro-styled PD-171 is a two-speed, belt-driven turntable with an AC synchronous motor and a 9" S-shaped tonearm made by Jelco. Central to the turntable, and largely responsible for its 51 lbs, is a 15mm-thick solid-alloy top plate that supports an 11-lb platter and sits above a plinth made of hardwood and sheet steel. Separating plate from plinth is a thin layer of damping material; additional vibration control is provided by four adjustable feet. Fine-tuning controls are provided for both running speeds; a slender, columnar LED light pole acts as a cueing aid; and a robust, clear-plastic dustcover is included. Setup was straightforward. Exceptionally forgiving of poorly recorded and very worn LPs, the Luxman sounded slightly warm overall, with a sweet top end, rich midrange, and reasonably satisfying bass, said AD. (Vol.36 No.11 WWW)

ORACLE PARIS: \$5000, AS REVIEWED ★

The newest turntable from Canada's Oracle Audio Technologies is finished in a stunning high-gloss red lacquer and uses a carbon-fiber tonearm based on Pro-Ject's 9cc. To both minimize the effects of harmful vibrations and allow for easy, accurate leveling, the platter and tonearm have been cleverly isolated from the turntable's subchassis, plinth, and AC synchronous drive motor. Oracle's Micro Vibration Silicone Damping Device, a tonearm-damping system comprising a stationary trough and silicone bath, further reduces vibrations. Setup was simple. Though it wasn't as quiet as AD's reference Garrard 301 and lacked that player's tonal color and texture, the Paris performed especially well with up-tempo rock music, exhibiting good timing, a punchy low end, and clean highs. Price includes tonearm and moving-coil cartridge; base price for turntable is \$3150. (Vol.34 No.10 WWW)

PTP AUDIO SOLID12: \$3300

Made in the Netherlands by Peter Reinders, the Solid12 has a heavy Corian plinth and uses several reconditioned components from original heavy-platter, idler-wheel Lencos: motors (along with their suspension cradles and wiring blocks), platters, platter bearings, platter mats, idler wheels, and idler-support mechanisms. Setup was simple and straightforward. Combined with AD's Schick tonearm and Ortofon SPU cartridge, the Solid12 delivered punch, drive, force, color, richness, and pure emotional and visceral involvement. "The essential musical rightness and the sheer availability and affordability of PTP Audio's Solid12 can't be overstated. If you want to know what the idler-wheel fuss is all about, this may be the easiest and most affordable way to find out," AD concluded. Price includes shipping from Amsterdam. (Vol.36 No.6 WWW)

REGA RP8: \$2995 WITH TONEARM

A highly evolved embodiment of Rega's philosophy of low mass and high rigidity, the RP8 uses a new low-mass, precision-engineered RB808 tonearm and a "skeletal" frame made from Rega's own version of Zotek, an ultrarigid polyolefin foam. As in the RP3 and RP6, a stress beam links the tonearm to the platter hub, increasing structural rigidity while reducing internal resonances and external vibrations. A newly designed glass platter is heavier at its perimeter, exponentially increasing the platter's flywheel effect and maximizing energy efficiency. Setup was quick and simple. Though it ran slightly fast, the RP8 produced a powerful, dramatic, coherent overall sound with solid, well-defined images; clean, articulated bass; exceptional resolution of detail; and outstanding dynamics, said MF. "Rega's new turntable-tonearm combo is the most exciting and truly revolutionary turntable to be introduced in quite some time," he concluded. If purchased with the Apheta 2 MC cartridge preinstalled, the RP8 costs \$4195, a savings of \$695. (Vol.36 No.11)

WELL TEMPERED AMADEUS MK.II: \$2850 INCLUDING TONEARM

The Chinese-made Amadeus Mk.II more or less replaces the US-made Well Tempered Record Player, long an AD favorite. Compared with that earlier 'table-arm combi-

nation, the Amadeus Mk.II uses a less complex platter bearing that uses light oil instead of thick silicone; a flat-profile platter with foam mat instead of a concave platter with threaded spindle clamp; an onboard low-torque motor instead of a more powerful outboard motor; a drive thread instead of a drive belt; and a thinner plinth, without the damping layer of yore. Changes evinced in the new Symmetrex tonearm include the elimination of adjustability for overhang and offset angle, and the switch from a purpose-made damping paddle to a bisected golf ball. Notwithstanding those changes, Well Tempered's second-least-expensive record player has, according to AD, "a musically involving sound—good timing, very good momentum and flow—combined with the sorts of spatial accomplishments and lack of obvious colorations that I associate with more traditional high-end audio products." (Vol.37 No.8 WWW)

C

CLEARAUDIO CONCEPT: \$1400 WITH TONEARM \$\$\$ ★

The sleek, stylish Concept is a plug'n'play, belt-driven turntable with a decoupled DC motor and integral Clearaudio Verify tonearm, available with either the Concept MC moving-coil cartridge (add \$800) or Concept MM moving-magnet cartridge (add \$200). Though its attack transients were soft and its deep-bass extension limited, the Concept produced black backgrounds, solid and three-dimensional images, and a clean, smooth midrange. "Exceptionally attractive, easy to set up and use, and better built than its price would suggest," concluded MF. "High Class C" says EL. With Clearaudio's standard Concept moving-magnet cartridge in place, EL noted a slightly opaque, closed-in treble, but was nevertheless impressed by the Concept's fleshy, detailed midrange and rich upper bass. Switching to the Concept MC cartridge resulted in even greater midrange detail and palpability, and a sweeter, more extended treble, he said. (Vol.34 No.6, Vol.35 No.8 WWW)

MUSIC HALL IKURA: \$1195

Designed in the US and manufactured in the Czech Republic, the Music Hall Ikura is a two-speed, belt-drive turntable that comes packaged with a 9" tonearm and bundled with an Ortofon 2M Blue MM cartridge (the latter a \$236 value when bought separately). The Ikura's simple and distinctly attractive exterior—according to BJR, even the dustcover is "sexy"—conceals a clever two-plinth design, with motor and electronics fastened to the bottom structure and the platter bearing and tonearm fastened to the top, with rubber cones in between. A pre-lubricated, stainless-steel ball bearing with a Teflon sleeve, a platter machined from MDF, and a DC motor are also featured. The aluminum tonearm has Swiss-made ABEC 7 (that's good) stainless-steel bearings, adjustable VTA, and a falling-weight antiskating mechanism. Cartridge alignment and arm height are set at the factory, although future adjustments, tools and instructions for which are included, can be easily made. In his listening, BJR discovered high-frequency performance that was "impressive for a \$1200 turntable" and bass performance that was "even more impressive." On the downside, he found that the Ikura-2M Blue combo could be flustered by unusually demanding passages. (Vol.37 No.12 WWW)

PIONEER PLX-1000: \$699 INCLUDING TONEARM \$\$\$

To those who deny the musicality of direct-drive platters and the servos they rode in on, HR said: Bunk. And he added: "Forget analog vs digital or tubes vs solid-state; the most pervasive and poorly considered belief of all is that only belt-drive turntables are worthy of audiophile consideration." From there HR praised the successor to the popular but discontinued Technics SL-1200MK2: the Pioneer PLX-1000 direct-drive turntable with integrated tonearm. "Belts can't touch the PLX-1000's excitement, naturally formed detail, and clearly expressed forward momentum," HR wrote. "This new Pioneer also showcases the complex tonal character and elegant structures of classical music better than any affordable belt-drive I've experienced." As HR heard it, the PLX-1000, whose

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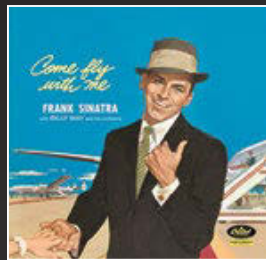
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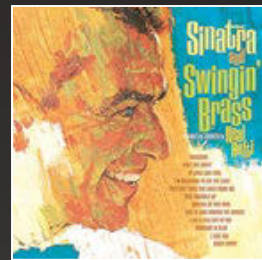
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Frank Sinatra
Come Fly With Me



Frank Sinatra
In The Wee Small Hours



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Sinatra and Swingin' Brass



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Simon & Garfunkel
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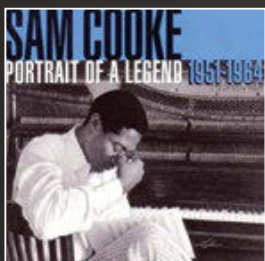
Simon & Garfunkel
Greatest Hits



Simon & Garfunkel
Parsley, Sage, Rosemary and Thyme



Simon & Garfunkel
Sounds Of Silence



Sam Cooke
Portrait Of A Legend
1951-1964



Shelby Lynne
Just A Little Lovin'



Various Artists
Jazz At The Pawnshop



DiMeola, McLaughlin
& DeLucia
Friday Night In San Francisco



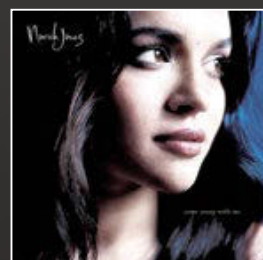
Stan Getz &
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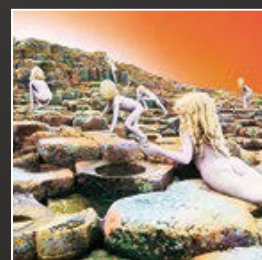
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motor exhibits more than twice the torque of its famous forebear, “is not only a worthy successor to the legendary Technics SL-1200MK2, it is a serious contender for the best audiophile-grade turntable for less than \$2000. Unabashedly recommended.” Borderline Class B, he dares to suggest. (Vol.38 No.3 WWW)

REGA RP3: \$1095 \$\$\$

Though similar in appearance to Rega’s P3-24, the RP3 uses Rega’s new RB303 tonearm and a completely redesigned plinth. The RB303 has a more rigid armtube, a revised three-point cartridge mount, and a new headshell, counterweight, and bearing assembly. The plinth now incorporates a flat, 4mm brace of superhard phenolic resin that couples the tonearm mount to the bearing assembly, both atop and below the plinth, to reduce mass and increase rigidity. Compared to the P3-24, the RP3 sounded leaner and cleaner, with a tighter and better-controlled bottom end, said MF. “The RP3 is a plug’n’play package that’s beautifully built, well engineered, and sounds wonderful,” he concluded. Compared to the VPI Traveler, the RP3 consistently produced faster transients and more aggressive, precise imaging for an overall sound that was snappy and exciting, but lacked the Traveler’s liquidity, bottom-end control, and rhythmic stability, said SM. Price includes Elys 2 moving-magnet cartridge; base price for turntable with tonearm is \$895. Optional Drive Belt: \$59; Rega TT PSU: \$395 (Vol.34 No.12, Vol.35 No.11)

VPI TRAVELER: \$1499 \$\$\$

The first VPI product codeveloped by Harry Weisfeld and his son Mathew, the Traveler is designed for easy setup and meant to appeal to a younger generation of music lovers. It uses an AC synchronous motor built directly into a rigid, compact chassis of Delrin and aluminum; a machined aluminum platter damped with a stainless-steel disc; a high-quality bearing assembly capable of driving a 20-lb platter; and a dedicated 10"-long, spring-loaded tonearm with a double-gimbal bearing for horizontal and vertical movement. The Traveler combined delicate highs, a clean midrange, outstanding low-end control, and awesomely silent backgrounds with an overall ease and fluidity that SM found intoxicating. Compared to the Rega RP3, the Traveler lacked transient speed and precision but offered greater clarity, presence, and rhythmic authority. MF says high Class C. Running changes since SM’s first review include sturdier tonearm bearings, a repositioned motor, a better platter mat, and cosmetic refinements; the last, according to SM, have left the current-production Traveler “easily more attractive than the original.” Available finishes include black, red, white, or blue. (Vol.35 No.11, Vol.37 No.5 WWW)

VPI NOMAD: \$995 \$\$\$

Equal parts entry-level audiophile component and perfectionist-quality lifestyle product, the VPI Nomad bundles a wood-plattered, belt-drive turntable and 10" gimbaled tonearm with an Ortofon 2M Red cartridge and an onboard phono preamplifier designed specifically around the former—plus an onboard headphone amp. BJR was impressed with the Nomad’s apparent durability and the plug-and-play ease with which it went from carton to system, with no painstaking adjustments required. Even more impressive was the player’s performance: BJR praised the Nomad’s “rich, voluptuous, uncolored midrange,” and heard “superb” transient articulation and “an impressive amount of inner detail for so inexpensive an analog rig.” One comparison test prompted BJR to declare: “that VPI’s phono stage held its own against a \$500 phono stage designed by one of the industry’s top electronics designers is pretty impressive, given that the VPI’s stage is designed as part of a turntable package costing only \$995.” A word of caution regarding the Nomad’s headphone amp: “It had much more gain than most pairs of headphones need. I found it all too easy to overdrive my ‘phones.” (Vol.38 No.2 WWW)

D

MUSIC HALL USB-1: \$249 ★

The two-speed, belt-driven USB-1 bears a striking resemblance to the iconic Technics SL-1200 turntable. It comes equipped with an aluminum platter and felt platter mat,

an S-shaped tonearm with detachable headshell, a serviceable Audio-Technica AT3600L moving-magnet phono cartridge, antiskating and pitch controls, and a thick dustcover. The USB-1 had a slower, darker, less rhythmically assured sound than the Rega RP-1, but produced eerily quiet backgrounds and solid stereo imaging. SM partnered the USB-1 with the Audioengine 5 powered speakers for “a stripped-down, badass, bitchin’ little system.” Converting vinyl to WAV files via the USB-1’s built-in phono preamp, USB output, and Audacity software was a simple but tedious process. (Vol.34 No.5 WWW)

REGA RP1: \$445 \$\$\$ ★

The plug’n’play RP1 (for Rega Planar One) replaces Rega’s popular P1. Nearly identical to the earlier model in size and shape, the RP1 uses an Ortofon OM5e moving-magnet cartridge, but trades the P1’s MDF platter for one of phenolic resin and adds Rega’s new, solidly built RB101 tonearm. Additionally, the P1’s drab gray finish is exchanged for the RP1’s choice of White, Cool Gray, or Titanium. Compared to the P1, the RP1 delivered more drive, better focus, and was the more confident, purposeful, and authoritative player. “Rega’s RP1 looks good, is easy to set up, and plays records like it means it,” said SM. AD shared SM’s enthusiasm: “It’s not just that I can’t imagine \$445 buying more happiness; I can’t imagine so modest an investment in money and effort buying more music.” The RP1 Performance Pack Upgrade was easy to install and resulted in a bigger soundstage, deeper silences, and greater resolution of low-level detail, said SM. “A no-brainer,” agreed AD. (Vol.34 Nos.2, 4, & 5 WWW)

K

BRINKMANN SPYDER, ORIGIN LIVE RESOLUTION MK3.

TONEARMS

A

AMG 12J2: \$4500

12" tonearm with dual-pivot, vertical bearing system. See MF’s review of the AMG Viella 12 turntable. (Vol.36 No.8)

AMG 9W2: \$3500 \$\$\$

The German-made 9W2 tonearm from turntable specialists AMG combines a traditional horizontal bearing with a vertical bearing that is, per AD, unique in its field: “an upright pair of 0.4mm spring-steel wires that are perfectly straight when the tonearm tube is balanced, yet flex in tandem and yield to the armtube’s mass when the counterweight is moved closer to the twin fulcrums.” The result, he reports, is a near-ideal combination of zero play and absence of friction. VTA and azimuth are easily adjusted, and a magnetic antiskating mechanism is included. Used on his Linn LP12—for which the 9W2 was apparently designed—the 9W2 was, said AD, “the first Linn-friendly arm I’ve heard that has made me stop sobbing about the demise of the Naim Aro: a considerable feat.” Also with reference to his past favorite tonearms, AD added: “None surpasses the 9W2 in sheer build quality.” (Vol.37 No.10 WWW)

BRINKMANN 10.5: \$6300 ★

A Breuer-like gimbaled-bearing design that features an armtube described by the designer as a “high-speed, double-concentric, ceramic-plated, self-damping transmission device.” JI uses a Brinkmann arm on his Oracle with great success. (Vol.28 No.5)

CONTINUUM AUDIO LABS COBRA: \$22,500 ★

The Cobra’s odd shape—it’s wider and higher in the middle—is designed to make the center of the arm as stiff and free of resonances as possible. The Cobra also includes original and ingenious methods for azimuth stabilization and adjustment. “The Caliburn-Cobra produced the most convincing, believable, solid, and alive sound picture I’ve heard,” said MF. Though its tonal balance was similar to that of the Kuzma 4Point, the Cobra sounded less energetic and less natural, decided MF. (Vol.29 Nos.1 & 6, Vol.34 No.10, Vol.35 No.7 WWW)

DURAND TONEARMS TELOS: \$25,500 ★

The beautiful Telos, Durand’s top model, is a 12", medium-

mass tonearm made of a superbly sculpted and finished piece of wood. It comes in an attach-style wooden case and includes a full set of high-quality setup tools and accessories: LED flashlight, loupe, pivot-to-spindle-distance gauge, and alignment gauge. The “constrained unipivot” design provides relatively easy azimuth adjustment and uses a Swiss-made point of nonmagnetic stainless steel and a sapphire cup. With the Lyra Atlas cartridge mounted in its headshell, the Durand Telos sounded “addictively glorious,” with outstanding harmonic richness and a relaxed sense of musical flow. Though bass response was well textured and relatively well controlled, the Telos lacked some bottom-octave solidity and punch, decided MF. (Vol.35 No.10)

EMT 997: \$5295 ★

The banana-shaped EMT 997 tonearm employs a fixed-pivot, high-mass design and has a detachable headshell. Its effective length of 307mm (12") works to minimize tracking-angle error and distortion. Though it sacrificed timbral neutrality, imparting well-recorded vocals with some “mid-to-upper-mid bumps and dips,” the 997 impressed Art with its ability to convey the inherent tension of recorded music. “The EMT 997 was the least wimpy, least wispy tonearm I’ve ever heard,” he said. If willing to invest the time and effort necessary for proper setup and installation, the user will be rewarded with “an almost indescribably great deal of pleasure,” AD added. (Vol.31 Nos.7 & 9 WWW)

IKEDA IT-407CR1: \$6500

Imported from Japan by Beauty of Sound, the IT-407 is a remarkable, high-mass 12" tonearm: “a beautifully rounded construction of polished chrome and stainless steel that appears to be at once both new and old,” said AD. It offers several setup and adjustment features, including: spring-actuated dynamic tracking force; a calibrated and adjustable falling-weight antiskating mechanism; an adjustable lift/lower platform, mated to Ikeda’s trademark spherical cueing knob; a headshell that’s easily adjustable for overhang, offset angle, and azimuth; and an adjustable arm pillar. The Ikeda excelled at minimizing groove noise and produced a big, round sound with a freedom from harshness and overall sonic poise that served every record Art played. “The Japanese arm sounded every bit as beautiful as it looks,” he summed up. (Vol.36 No.8 WWW)

KUZMA 4POINT: \$6675 ★

Designed by Franc Kuzma, this brilliant pivoted tonearm takes its name from its four-point bearing system: Four carefully arranged points contact four cups, permitting the arm to move in both the vertical and lateral planes while avoiding the chatter of gimbaled bearings and the instability of unipivot designs. It has an effective length of 11", a pivot-to-spindle distance of 10.3", an overhang of 0.6", an effective mass of 0.4oz, and a total weight of 3.63 lbs. Its removable headshell made swapping cartridges painless, while adjustment of VTF, VTA, antiskating, and azimuth were all relatively simple. With its outstanding immediacy, transparency, and overall coherence, the 4Point consistently exceeded Mikey’s expectations. Compared to the combo of Continuum Cobra arm and Ortofon A90 cartridge, the 4Point with Lyra Titan i offered greater timbral, textural, and image solidity, said MF. “I’m in love,” he concluded. Compared with the Continuum Audio Labs Cobra, the Kuzma sounded more natural and more energetic. “The Kuzma 4Point may be the finest tonearm out there, period,” said MF. The Kuzma matched the Graham Phantom II Supreme’s detail retrieval and neutrality but offered greater speed and coherence, said MF. Also offered with regular phono cables/no RCA box for \$6375. (Vol.34 Nos.9 & 10, Vol.35 No.7 WWW)

LINN EKOS SE: \$4950 ★

Outwardly identical to the original Ekos in all but color, the Ekos SE is machined from a titanium tube in an effort to smooth out resonant peaks, while its stainless-steel main pillar and bearing cradle work to maintain perfect bearing adjustment in the face of temperature extremes and user abuse. The “beautifully finished” SE comes packaged with a selection of tools, a Linn T-Kable interconnect, and a new iteration of Linn’s cable clamp. With its strong, tight bass and solid aural images, the Ekos SE produced a “cleaner,

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For over twenty years Chord Electronics has been making some of the world's most innovative DACs. Not content with off-the-shelf DAC chips, Chord engineers developed their own proprietary pulse-array FPGA (programmable) DAC, the legendary DAC64, a Stereophile magazine A+ Recommended Component. Chord's second-generation FPGA DAC, the \$8,000 QBD76 HDSB, was able to recreate a delicate signal down to a remarkable -150dB accuracy and redefined DAC performance.

QuteHD

In 2012, this same state-of-the-art technology was made available in Chord's \$1,795 QuteHD DAC. The performance of this ground-breaking device astounded the world's press: the QuteHD was favorably compared to the finest DACs in the world including those from dCS, Esoteric and EMM Labs. With Chord's breakthrough proprietary DAC technology, the QuteHD received dozens of accolades, best-in-class awards and tremendous reviews like:

"Competitive with top flight CD players from Esoteric, dCS, Accuphase and EMM Labs, this DAC goes head to head and matches them on most scores... an absolutely stunning result for the QuteHD. I am wildly enthusiastic about this DAC"

- Phil Gold, enjoythemusic, December 2012

Hugo

The Hugo, released in early 2014, further extended Chord's ground-breaking DAC technology and has become a revolutionary product that has set the standard by which all DACs are measured. By year's end the Hugo had been recognized with over 40 glowing reviews from just about every audio hardware-reviewing entity in the world.

According to Chord founder John Franks, "We were shocked by the off-the-chart Hugo sales. Thousands of people purchased Hugo to use as the main DAC in their home systems – many of which contain price no object components." Why would so many people buy a \$2,500 DAC to use in their world-class

reference systems? Simple: because after careful evaluation they concluded Hugo delivered the very best sound, and that's all that really matters.

HugoTT

In January 2015 Chord Electronics introduced the new Hugo TT (\$4,795), the most sophisticated DAC they've ever made and one which takes Hugo performance up yet another level and adds functionality and connectivity.

The new Hugo TT offers numerous improvements over Hugo and a substantial improvement in sound quality. Larger batteries and new super capacitors give the Hugo TT more power, galvanic isolation on the USB input completely eliminates jitter, increased Class A bias reduces distortion, plus the Hugo TT is now a balanced design. As a result, the Hugo TT has more power, better dynamics, greater dynamic headroom, a smoother, more natural sound and better soundstage recreation.

Ease of use is improved by a new front-mounted input selector, cross-feed selector, power on/off switch, LED display of selected input, retention of selected input after power down, better accommodation of audio cables, a full function remote control and new single ended and balanced outputs. Apt-X Bluetooth range is increased to 150' and a 75ohm coaxial input has been added. Finally, Hugo TT is built to last with a beautifully machined solid aluminum case and a 15 – 20 year battery life.

2Qute

The 2Qute, introduced March 2015, is a Hugo DAC in a Chordette chassis. For those who want the best-sounding DAC for their home system the new 2Qute (\$1,795) is undeniably the best choice. Enhanced RF filtering plus an extra stage of voltage regulation enable the 2Qute to deliver the same performance levels as the Hugo despite being AC powered.

Is the 2Qute the world's "best" DAC? – we'll leave that for you to decide – but, endowed with all of Chord's trademark FPGA DAC technology, it is irrefutably the world's best buy in state-of-the-art high-performance DACs.

It's not just another DAC - it's a Chord.

Read the full story at www.bluebirdmusic.com/hugo



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TONEARMS

more dramatic, and more enjoyable" listening experience, said AD. "Other, more exotic arms may give better results in some settings, but I can't think of a more consistent—and consistently recommendable—tonearm. It's a Martin D-28, a BMW 3-series, a bottle of Bombay Sapphire: It will please any sane, reasonable person," he sums up. (Vol.30 No.10 WWW)

PEAR AUDIO ANALOGUE CORNET 2: \$2195

Designed by the late Tom Fletcher, of Nottingham Analogue, and descended from his popular Space Arm, the Slovenian-made Cornet 2 is a unipivot tonearm with a carbon-fiber armtube, said fibers being arranged longitudinally, according to the manufacturer. The Cornet 2's headshell, made of an unspecified material and bereft of a finger lift, is aligned straight with the armtube itself, though its mounting-bolt slots offer provisions for offsetting the cartridge. A falling-weight antiskating mechanism is provided, and an effective mass of 12.5gm and an effective length of 239mm are specified. MF found the Cornet 2's instructions lacking, and noted that, although "every parameter of the Cornet 2 is adjustable, a few are not easily set—the usual trade-off in a moderately priced arm." According to MF, when used with the similarly Fletcher-designed Pear Audio Analogue Kid Thomas turntable, the Cornet 2 contributed to a "smooth, refined sound" that many will find appealing. Moreover, compared to his experiences with earlier Fletcher-designed arms, MF suspected that "the Cornet 2 is faster, leaner, and better focused, despite the many similarities of construction." (Vol.38 No.1)

SME 312S: \$4100 ★

The 312S is a 12" tonearm with a tapered armtube made of pressure die-cast magnesium for strength, rigidity, and low mass. With fit'n'finish to match the no-nonsense precision of SME's 20/12 turntable, the 312S includes a secure sliding-track overhang-adjustment mechanism, a spring-loaded VTA post, and a silicone-filled damping trough with adjustable paddle. SME has produced "a tonearm that has all of the 12" arm's theoretical advantages and none of its disadvantages," MF said. (Vol.32 No.5 WWW)

SPIRAL GROOVE CENTROID: \$6000 ★

The Centroid is a fluid-damped unipivot design that gives the user fine adjustment of all relevant parameters. It was extremely quiet, with stunning resolution and clarity, and had an uncanny ability to reproduce the tonal and dynamic elements of deep bass notes. "The Centroid tonearm may be the best tonearm I've heard. It is not leaving my listening room," declared BD. The Spiral Groove SG1.1-Centroid turntable-tonearm combo offered black backgrounds, rock-solid bass, natural tone color, and outstanding detail retrieval, said Mikey. A universal version with standard arm mount is also now available. (Vol.33 No.6 WWW, Vol.35 No.11)

THOMAS SCHICK 12" TONEARM: \$1675 \$\$\$ ★

Made in Germany and as of 2015 distributed direct by its manufacturer, the Thomas Schick 12" tonearm is intended to combine the greater-than-average length and mass of certain vintage models with the high-quality bearings of modern arms. It offers superb fit and finish, with a clean, spare bearing cradle and a smoothly solid pickup-head socket. Though lacking the spring-loaded downforce and other refinements of the EMT 997—and, thus, some measure of the more expensive arm's performance—the Schick is characterized by a big, clean, substantial sound, with an especially colorful bottom end: "a superb performer," per AD, who also verified the correctness of the Schick's geometry with Keith Howard's ArmGeometer freeware. According to Art, "The Schick tonearm is an outstanding value and easily the most accessible transcription-length arm on the market." Thomas Schick has now added to his line a proprietary headshell (€249) machined from resin-soaked "technical" graphite, with a mass (15.2gm) that makes it more suitable than most for use with cartridges of low to moderate compliance. AD bought the new headshell for himself and reported that, compared to his wooden Yamamoto headshell, the Schick offered "far tighter, cleaner bass." He was also impressed with how "cartridges mounted in the Schick suffer less

breakup during heavily modulated passages." (Vol.33 Nos. 3 & 6, Vol.34 No.10, Vol.37 No.11 WWW)

TRI-PLANAR MK.VII UII: \$6200 ★

This venerable tonearm maker has a new owner (see "Analog Corner," March 2001). The Mk.VII UII builds on earlier versions, "with a larger-diameter headshell tube, a larger damping trough, and redesigned bearings, featuring handmade hardened and polished needle cones." Many of the arm's parts are still made by Papier's machinist in Maryland. "Right out of the box," MF said, "it was obvious that the Tri-Planar's build quality is still topnotch." But MF still has a beef with the headshell screw slots—"way too wide." Still, "the Tri-Planar was one of the first...captured-bearing tonearms to offer easily adjustable VTA and azimuth adjustment." MF: "The sound of the Tri-Planar had not changed appreciably since I last auditioned it: It offered unerring, rock-solid image and soundstage stability. The bass was extended and lithe, and high-frequency transients were cleanly presented. The picture was airy and big....In any case, the Tri-Planar's ability to resolve low-level detail was superb, and its tonal balance and frequency extension were exemplary." Price includes 1m cable/RCA plug termination or 10" wire to RCA-jack junction box. BD's reference tonearm as of 2009; he got great results with the Tri-Planar on a Spiral Groove SG-2 turntable. The Tri-Planar Precision Mk.VII sounded vivid and solid on the Spiral Groove SG2, with rich tonal colors and textures, but was never overly euphonic, said BD. (Vol.18 No.2, Vol.21 No.3, earlier versions; Vol.24 No.7, Mk.VI Ultimate; Vol.33 No.6, Mk.VII WWW)

VPI JMW MEMORIAL 3D-PRINTED**12" TONEARM: \$3000**

The JMW Classic 3D 12" tonearm is identical to the JMW Classic Signature of the same length—with one big difference: This unipivot's removable armwand is made, on a 3D printer, of an epoxy-like resin said to impede the transfer of vibrations. MF was very impressed with the new model's smooth, transparent, well-balanced sound, likening it in those regards to his reference Continuum Cobra tonearm, and declaring the Classic 3D the logical upgrade for present owners of the JMW Memorial arm: "It's not that the metal JMW arm is so bad—it's that the 3D-printed version is so good." AD, who has set up a JMW Classic 3D for friend Sasha Matson, reports being very impressed with the new arm's level of finish. (Vol.37 No.6 WWW)

VPI JMW-12: \$1700 \$\$\$ ★

Unipivot tonearm features vestigial antiskating, which disconcerted MF. Nonetheless, he enthused over its lush midrange, ultra-smooth top end, and rock-solid imaging and soundstaging: "Subjectively, it seemed to have lower distortion than any other pivoted arm I've heard, but part of that might be the result of its smooth frequency balance. Inner detail was outstanding." However, he added of the original 12.5 version, "I think there's a slight midbass exaggeration that may be part of the spreading warmth above this range, and which gives this arm its inviting midrange." BD says of the 12" version, "lowers the original's already low distortion. The background is blacker and the arm seems to float an infinite well of inner and low-level details. The tonal balance is more neutral, but combined with the TNT III or IV, is still warm and inviting." With the 12.5, Harry Weisfeld made small but important modifications to the 12" JMW that resulted in heightened rigidity, a reduced center of mass, and improved damping. What BD found most impressive was the "obvious-once-you-see-it" touch of the small V-groove machined into the top of the headshell. This allows the user to more easily gauge headshell tilt while setting azimuth. "Neat!" MF adds: "Luxurious midrange, low distortion, and ease of setup and use make this a very attractive arm if your 'table can handle the length." More recently, in addition to a streamlined model name, VPI's first transcription-length tonearm has come in for some mechanical refinements. Its unipivot bearing, and the jeweled cup within its bearing housing, have been improved. A weighted collar has been added to the counterweight, and can be rotated asymmetrically for azimuth adjustment. "Most important," according to MF, "[its] cantilevered platform has been made far more massive and sturdy." Additionally, an antiskating mechanism

is now available, though not without the manufacturer's antipathy. Additional arm assemblies cost \$600. (Vol.20 No.1, Vol.24 No.12, Vol.25 No.3, Vol.37 No.5; see BD's review of the VPI HR-X in Vol.29 No.5 WWW)

VPI CLASSIC-JMW: \$1600 ★

An upgraded version of VPI's JMW Memorial 10.5i, the Classic-JMW, included with VPI's Classic 3 turntable, uses a new stainless-steel armtube, a stronger, more massive bearing platform, and a more rigid base mount. Though lateral instability remained a problem, any adverse effects were inaudible, said Mikey. (Vol.34 No.10 WWW)

B**ABIS TA-1L: \$1999**

From the same Japanese firm that makes the heartily recommended 9" SA-1 tonearm comes the Abis TA-1L, the L standing for long—as in 12". The TA-1L has an S-shaped aluminum armtube, and its removable aluminum headshell is anodized black. Cup-and-point bearings are used for vertical movement, while the horizontal bearing is a traditional ball-and-race sort; AD found all bearings to be free of both friction and excess play. A spring-actuated antiskating device is fitted, while downforce is applied statically. The effective length is 325mm, and while the effective mass is not specified, the arm seems appropriate for use with medium- to low-compliance cartridges and pickup heads—an impression borne out in AD's listening tests: "The Abis tonearm allowed the Miyajima [Premium BE Mono II] . . . to shine as a detail-retrieval champ of the first order," although he heard less bass weight than desired. AD also noted an inaccuracy in the TA-1L's installation jig, advising prospective users: "Just remember that it may require an extra bit of attention in setting up." (Vol.38 No.1 WWW)

AUDIO ORIGAMI PU7: \$3000

Based on the Syrinx PU2 tonearm of the 1980s—a product that BJR, AD, and other Stereophile contributors have owned and loved—the Audio Origami PU7, from Scotland, is a pivoting arm with a gimbaled ball-race bearing. The PU7 seems better finished than its forebear, though creature comforts are thin on the ground: Adjustments of VTF and VTA depend on the user loosening one or more grub screws and repositioning uncalibrated parts, and antiskating is a simple thread and falling weight—but, as MF points out, the design "emphasizes rigidity over convenience." Used with the Palmer Audio 2.5 turntable, the PU7 contributed a notably velvety sound with a bottom end that was "well controlled and extended," said MF, who cautioned that "images were of less-than-pinpoint accuracy and somewhat larger than life." But the PU7 distinguished itself as "a fine tracker, and feels as if it has bearings of . . . extremely high quality. Physically and sonically, it's a lot of tonearm for \$3000, though I think its tube needs better internal damping." (Vol.37 No.10)

CLEARAUDIO CLARIFY: \$1600

A perfect partner for Clearaudio's Ovation turntable, the Clarify has a machined aluminum headshell with azimuth adjustment, a carbon-fiber armtube, a magnetic bearing, and a low-center-of-gravity counterweight with an integral mechanism for adjusting VTF. It uses Clearaudio's proprietary Direct Wire, a five-conductor configuration of copper with Teflon insulation, implemented as a direct run from the cartridge clips to a 1.2m tonearm cable terminated with RCA plugs. The Ovation-Clarify combo had a resolving, nuanced, musical sound, said EL. See listing for Clearaudio Ovation in "Turntables." (Vol.35 No.10 WWW)

ORTOFON TA-210: \$1994

The 12" TA-210 is a pivoting tonearm with traditional gimbaled bearings for lateral and vertical movement, and a curved, damped aluminum-alloy armtube. Versatile and user-friendly, it comes with a removable cable, a plug-in headshell for use with standard-mount phono cartridges, and a simple, accurate installation jig. Compared to the EMT 997 and Schick Tonearm, the Ortofon lacked some scale, presence, and impact, but sounded consistently smooth, serene, and uncolored, with no apparent stressing on dynamic peaks, said AD. "A wise choice for a newcomer to the world of vintage-style phonography," he concluded. (Vol.35 No.10 WWW)

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TONEARMS

REGA RB303: \$595 \$\$\$ ★

Latest version of Rega's classic tonearm. See the Rega RP3 entry in "Turntables." (Vol.34 No.12)

VIV LAB RIGID FLOAT: \$4390–\$4990

The Viv Laboratory Rigid Float is a radically different tonearm: a design that combats tonearm skating forces and their distortions not with the application of anti-skating—which the designer abhors—but by eliminating from his arm the headshell offset that, in tandem with the friction of the stylus in the groove, causes skating in the first place. Consequently, like the RS Laboratory arm before it, the Rigid Float's geometry eschews overhang in favor of underhang, the cartridge-alignment implications of which concerned MF—who also scratched his head over the nonrigidity of the Viv arm's turntable mounting arrangement and consequent less-than-optimal height-adjustment provisions. But MF was impressed with its unconventional bearing—"the pivot floats on a dark, magnetic, light-viscosity, ferrofluid-like oil that you inject into . . . the front of the pivot housing"—and, in the end, was wowed by the Rigid Float's "gloriously smooth" midrange and "meaty, full-bodied" bass: "If you love to the exclusion of most everything else the romantic, vintage, midrangey sound that some people insist is 'music,' the Viv Laboratory Rigid Float is made for you." (Vol.37 No.8)

VPI JMW-9: \$1000 ★

The newest and shortest of Harry Weisfeld's JMW tonearm line, the JMW-9 comes standard with the Aries Scout turntable. (AD enthused about the combination's sound.) It uses a reverse-missionary bearing with a hardened tungsten-carbide point and a machined and hardened-steel set-screw for a cup. A quick-connect plug makes for easy removal and easy cartridge swapping, but as with all Harry Weisfeld designs, there is no antiskating mechanism. MF auditioned the 9" version of the JMW Memorial tonearm with VPI's Scoutmaster turntable. Unlike the original JMW Memorial, the 9" arm's main bearing is directly grounded to the plinth and the stabilizing ring surrounding the arm's bearing housing is fixed. The lack of a damping well results in a "Parkinson's-like trembling of the JMW when you use the finger lift or lower the arm via the cueing mechanism," which MF found disconcerting. Nevertheless, the arm appeared to be extremely stable: "The taut, focused, remarkably coherent performance of this 'table-arm combo is testament to a fundamentally solid, well-grounded system that deals effectively with energy created at the stylus/groove interface." Some disagreement between AD and MF over the overall rating, but Class B seems appropriate. (Vol.26 No.2, Vol.27 No.9 WWW)

Editor's Note: There are currently no Class C or D tonearms listed.

K**BRINKMANN TONEARM 12.1, ORIGIN ILLUSTRIOUS 3C.****DELETIONS**

Graham Phantom II Supreme replaced by Phantom III not yet auditioned.

PHONO CARTRIDGES**A****BRINKMANN PI: \$2700 \$\$\$ ★**

The Pi moving-coil cartridge uses a motor built to Brinkmann's specifications by Benz-Micro, includes a Micro-Ridge stylus, and has a body of machined aluminum designed to control the dissipation of resonant energy. Though its tonal balance was slightly lean, the Pi's overall frequency extension and tracking ability were impressive, said MF. "The Pi cartridge strikes me as very competitive at and above its price," he concluded. (Vol.34 No.5 WWW)

CLEARAUDIO GOLDFINGER STATEMENT: \$15,000

The audacious Goldfinger Statement has a diamond embedded in the front panel of its 14K-gold body, and

features EMF shielding and a resonance-damping, gold-fingered top plate. It uses 12 magnets, a 24K-gold coil assembly, and a boron cantilever with a Micro HD stylus. The unusual specs include a high weight of 17gm and a high output of 0.9mV; tracking force is 2.8gm. Though it lacked ultimate soundstage width, the Goldfinger Statement produced a "generous, voluminous midrange" and had outstanding dynamics, bottom-end extension and authority, and transient speed and clarity, said MF. (Vol.35 No.9)

EMT TSD 15: \$1950 \$\$\$ ★

The EMT TSD 15 is an A-style pickup head weighing just over 17.5gm and available with either EMT's proprietary diamond-shaped output-pin pattern or the more common SME square pattern. It has a high impedance of 24 ohms, a high output of 1.05mV, and a moderate recommended downforce of 2.5gm. The EMT's overall sound was open, clear, and transparent, with above-average presence, body, and color, and an outstanding sense of momentum and flow. "A fine all-rounder, combining starkly honest music-making with the sorts of refined sonic attributes most audiophiles cherish," said Art. Examining the EMT with a microscope revealed its distinctly small, sharp, spherical tip, which, AD conjectured, may be the reason for the stylus's exceptionally low groove noise. For special systems only, as it is a complete pickup head, not just a cartridge. (Vol.34 Nos.5 & 9 WWW)

HANIWA AUDIO SYSTEM HCTRO1: \$5000 ★

Designed in Japan by Tetsuo Kubo and built by Y. Matsudaira of My Sonic Lab, the beautifully made HCTRO1 moving-coil cartridge has a super-low internal impedance of 0.8 ohm and can track at an astonishingly low 0.6–1.0gm when used with Haniwa's HEQA01 Phono Equalizer. It uses a boron cantilever and a line-contact stylus assembly. While it lacked midrange warmth and texture, the Haniwa produced "a fully extended, ultraclean, remarkably transparent sound," said MF. Sold direct from Kubotek USA with a money-back guarantee. (Vol.34 No.11)

KISEKI PURPLEHEART (N.S.): \$3299

Following an absence from the market of nearly a quarter century, Kiseki's handmade MC cartridges are back, manifested in two separate lines: New Old Style (NOS), built in 2010–2011 using a mix of old and new parts, and New Style (NS), which are new in every way. The Purpleheart NS is among the latter, and features a metal mounting plate with tapped holes and a solid-boron cantilever with an elliptical stylus. Specs include a 42-ohm internal resistance, 0.48mV output, and a recommended VTF of 2.46gm, in accordance with the Kiseki's moderate compliance. In MF's system, the Purpleheart NS produced "rich, supple sound with a tube-like tonality and musical flow," albeit with "less-than-full expression of macrodynamics." All in all, MF found the Kiseki to be "a physical and sonic beauty. [It] offers a sophisticated sound well beyond what you'd expect at its \$3299 price." (Vol.38 No.3)

LYRA ATLAS: \$9500

With its off-center motor-retaining screw and asymmetrical design, Lyra's new top model represents designer Jonathan Carr's latest ideas on minimizing resonances. It has a body machined from a solid billet of aluminum, a diamond-coated boron cantilever, and a nude diamond stylus. The Atlas combined the Titan i's detail and transient speed with the Kleos's warmth and smoothness, said MF. "The Lyra Atlas is a complete success." (Vol.35 No.5 WWW)

LYRA ETNA: \$6995

Like Lyra's flagship, the Atlas, the Etna is machined from a solid billet of titanium and has a high-efficiency, X-shaped former and coil arrangement; a yokeless dual-magnet system; a cantilever rod of diamond-coated boron; and a Lyra-designed, line-contact stylus with varying radii. It weighs 9.2gm, has an optimum VTF of 1.72gm, and its recommended resistive load is between 104 and 887 ohms. As in all Lyra designs, the motor is built into the cartridge's body via a wire suspension held in place by a tiny screw. Compared to the Atlas, the Etna lacked dynamic drive and spatial resolution, but produced a harmonically rich, full-bodied, ultradetailed, and natural sound, said MF. "One of the most neutral- yet enticing-sounding cartridges I've heard, it's also one I can recommend for any system and

for any sonic or musical taste," he concluded. (Vol.37 No.3 WWW)

MIYAJIMA LABS MADAKE: \$5895

As MF observed, "For all intents and purposes, the Madake is a Miyajima Kansui fitted with a mostly bamboo cantilever"—madake being the Japanese word for bamboo, and mostly referring to the fact that there's some aluminum in there, too. Compared to Miyajima's previous designs, this wood-bodied, low-output, moderately low-compliance stereo MC cartridge surprised MF by being a "faster performer that manages to considerably extend the top end without making it sound thin or bright." He concluded: "[If you] can afford it, you'll definitely want to add the Madake to your arsenal." (Vol.37 No.12)

MIYAJIMA LABS KANSUI: \$3600 ★

Like the Miyajima Shilabe, the Kansui uses a cross-ring motor design, weighs 10.4gm, has an internal impedance of 16 ohms, is fitted with a Shibata stylus, and has a curvaceous body of African Blackwood. Because it has a higher compliance, however, the Kansui can track at a significantly lower tracking force for greater speed and resolution. Though it lacked the Haniwa HCTRO1's resolution of spatial information, the Kansui offered a meatier and more intimate sound, with forceful bass, rich textures, and solid images, said MF. (Vol.34 No.11)

MIYAJIMA LABS SHILABE: \$2995 ★

The Shilabe is a low-output (0.23mV), low-compliance design with an unusually high recommended tracking force of 2.5–3.2gm. Its Shibata stylus is attached to a large-diameter, old-fashioned-looking cantilever. Like Miyajima's Premium Mono, the Shilabe uses a patented "cross-ring" construction that centers the generator's fulcrum within the coil. Though it lacked the soundstaging and imaging of the Shun Mook Signature, the Shilabe had a sound that was "full-bodied, deep, and extremely well-defined," and offered "superbly coherent transient and harmonic presentation from top to bottom," said MF. AD also enjoyed the Shilabe's "consistently present, colorful, and downright chunky" sound. "It was the closest I've heard a stereo cartridge come to delivering the meat, the force, the sheer solidity of mono," he said. (Vol.32 No.9, Vol.33 No.10 WWW)

MIYAJIMA LABS ZERO MONO: \$1995

The Zero Mono cartridge has an output of 0.4mV, making it compatible with a wide range of moving-coil phono preamps. Compared to Miyajima Lab's Premium BE, the Zero produced a similarly big, rich, meaty sound, but offered improvements in image focus, clarity, transient detail, and bass control, said MF. "If you treasure your mono albums, get a Zero. It's infinitely better than any other mono cartridge I've heard," he summed up. (Vol.36 No.3)

ORTOFON ANNA: \$8924

Named after Russian soprano Anna Netrebko, Ortofon's new flagship moving-coil cartridge uses a high-efficiency magnet system for improved dynamics and impulse linearity over earlier Ortofon designs. It has a curved titanium body, a boron cantilever, and a nude Replicant stylus. Its low (0.2mV) output means it should be used with only the quietest phono preamps capable of considerable gain; an appropriate step-up transformer should provide the best results. Compared with the Lyra Atlas, the Anna sounded slightly warm and lacked bottom-end tightness and impact, but was more texturally refined, said MF. (Vol.36 No.5)

ORTOFON XPRESSION: \$5669 ★

A unique blend of new and old technologies, the Xpression derives from Ortofon's cutting-edge MC A90, but is designed as a drop-in replacement for any G-style pickup head. It uses a Replicant 100 stylus, has a recommended downforce of 2.6gm, an impedance of 4 ohms, and a low 0.3mV output. Compared to AD's original Ortofon SPU, the Xpression sounded just as solid, colorful, and forceful, but was more detailed, open, tactile, and revealing of nuance and technique. "The difference was real: Love my older Ortofon though I do, the Xpression was clearly more dramatic, with no penalty in texture or color," said Art. (Vol.35 No.2 WWW)

ORTOFON 95TH ANNIVERSARY SPU: \$3400

Derived from Ortofon's SPU 90th Anniversary pickup



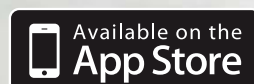
NAD MASTERS STATEMENT OF THE ART

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head of 2008, the new SPU 95th Anniversary adds a few refinements, including a change from stainless steel to titanium for the internal frame—still manufactured via selective laser melting (SLM)—and an increase in magnet strength. Recommended tracking force is 3gm for the low-compliance SPU 95th Anniversary; the stylus profile is elliptical, the output 0.3mV. AD enjoyed his time with the new SPU: “It’s a well-behaved, notably modern pickup that is quiet and imperturbable in the groove . . . yet it is also, identifiably, an SPU, with [a] solid sound and fine sense of drive.” Recommended for use in tonearms of highish mass. (Vol.37 No.12 WWW)

SOUNDSMITH SG-200 STRAIN GAUGE MK.IV: \$8590 ★

The SG-200 is a strain-gauge phono cartridge with six choices of interchangeable styli and a dedicated power supply and preamplifier. Two bright-blue tubular LEDs run vertically through the metal body’s horizontal slats, giving the cartridge a unique look. Also unlike most cartridges, the SG-200 provides controls for setting vertical tracking angle and azimuth. Though it could sound somewhat cool and lacking in physicality, with a lean midrange and stingy sustain, the SG-200 produced incredibly clean, fast top-to-bottom transient attack, deep bass, airy highs, and spectacular transparency. “The SG-200 is a unique game-changing product,” said MF. Price includes two SGS-5 styli; add \$100 for the SGS-6, a nude line-contact stylus with a ruby cantilever. (Vol.34 No.3 WWW)

SOUNDSMITH SUSSURRO: \$4800 ★

Designed and built in the US by SoundSmith’s Peter Ledermann, the Sussurro is a low-output (0.3mV), low-mass (8.79gm), moving-iron cartridge intended to be used with an MC phono stage that can provide 60dB of gain. It has a wood body, a ruby cantilever, and a line-contact diamond stylus; its unique construction allows for adjustment of azimuth, vertical tracking angle, and stylus rake angle, all from the cartridge body. Though it lacked some resolution and detail, the Sussurro was an exceptionally quiet and smooth tracker, and offered a slightly warm and lush overall sound, said MF. The Sussurro’s stylus’s severe profile mandates precise settings of overhang, zenith angle, and especially SRA and VTA. (Vol.35 No.3)

STEIN MUSIC AVENTURIN 6 MK2: \$6495

Based on a Benz LP-S motor with a solid-boron cantilever and a micro-ridge stylus, the Aventurin 6 Mk.2 has a boxy, open-bottomed body made of layers of mahogany and carbon fiber. Its moderate weight of 11.5gm makes it an ideal match for tonearms of medium to high mass. Though it lacked the full-bodied sound of the more expensive Lyra Anna, the Aventurin was fast, clean, and natural, with a well-extended treble, solid bass, and rich midrange, said MF. (Vol.36 No.10)

TRANSFIGURATION PROTEUS: \$6000

For their new flagship MC cartridge, Transfiguration returned to the double-ring-magnet construction of earlier models, adding silver-wire coils with so few windings that an internal resistance of just 1 ohm is claimed. Nevertheless, output is specified as 0.2mV at 3.54cm/s (using the industry’s standard of 5cm/s, the Proteus’s output is actually closer to 0.28mV). The Proteus sports a PA-profile stylus at the end of its boron cantilever, and the moderate-compliance motor is said to perform well at a VTF of 2gm. Based on his experience with earlier Transfigurations—models known more for “getting out of the way” than for trying to make a “beautiful sound”—MF had high expectations; even so, he wasn’t prepared for what he heard: “Even before [it] had a chance to fully break in and develop, what I was hearing put it up there with the best, most musically involving cartridges I’ve heard at any price.” As for value, MF described the Proteus as “expensive, but not stupidly so,” the latter sobriquet being something he reserves for cartridges that sell for \$10,000 and up. (Vol.37 No.10)

B

CLEARAUDIO MAESTRO V2 EBONY: \$1200

Provisional rating. See MF’s review in this issue.

GOLDRING LEGACY: \$1395 ★

The low-output (0.25mV) Legacy is a moving-coil design

with a lightweight, low-resonance magnesium body and a low-mass, fine-line Vital stylus. Mounted in MF’s Graham Phantom 2 tonearm, the Legacy was a superb and quiet tracker capable of delivering loads of detail. Though it lacked the midrange richness of more expensive cartridges, the Legacy managed to sound smooth and relaxed, never etched or analytical. Requires a great deal of attention in setup to achieve the best results, and must be used with a high-quality phono preamp or step-up transformer, advised MF. Goldring recommends a resistive load of 100 ohms and a tracking force of 1.75gm. (Vol.33 No.11)

LYRA KLEOS: \$2995 ★

Billed as a replacement for Lyra’s classic Helikon, the moving-coil Kleos uses an Ogura boron cantilever fitted with a low-mass line-contact stylus, and includes Lyra’s New Angle alignment system. Compared to the Helikon, the Kleos had a warmer sound, with greater delicacy and detail. While it lacked the resolution and dynamics of Lyra’s Titan, something that just keeps it from Class A, the Kleos combined a neutral tonal balance with airy highs, a rich midrange, well-controlled lows, a wide soundstage, and solid, three-dimensional images. “Highly recommended, and without reservation,” said MF. (Vol.34 No.1)

MIYAJIMA LABS TAKUMI: \$1850

Like Miyajima’s more expensive Shilabe, the Takumi has a body of sculpted African rosewood and uses the company’s “cross-ring” motor assembly. Compared to the Shilabe, the Takumi has a slightly lower output (0.2 vs 0.23mV), a more forgiving stylus profile (elliptical vs Shibata), and is slightly lighter (9 vs 10.4gm), with a lower recommended tracking force (2.5 vs 3.2gm). Sonically, however, the Takumi more closely resembled its more expensive sibling, with a meaty and full-bodied sound that was only slightly less detailed, said MF. (Vol.36 No.10)

MIYAJIMA LABS PREMIUM BE MONO:

\$1260 \$\$\$ ★

With its ebony body and pure-diamond conical stylus, the Premium Be Mono weighs 10.8gm, has a recommended tracking force of 3.5gm and an internal impedance of 6 ohms, and outputs 0.9mV. It produced “big, pure, meaty, midband mono physicality, and remarkable depth of soundstage,” said MF, who feels Class A would be a more accurate rating. “The Premium BE Mono is my favorite mono cartridge at any price.” The Premium Mono BE sounded “chunky, colorful, forceful, and fun,” said AD, who recommends Class B (High Value). Also available as part of Robyatt Audio’s Ultimate Mono Record Playing System (\$3000), with the Robyatt Audio Mono transformer and Tektron Italia Mono phono preamp. (Vol.33 No.11, Vol.35 No.6 WWW)

MIYAJIMA LABS PREMIUM MONO: \$1050 ★

The Premium Mono monophonic cartridge uses Noriyuki Miyajima’s “cross-ring method,” whereby the cantilever’s fulcrum is centered precisely within the former on which the coil is wound. Recommended downforce is 3.5gm. In addition to its “near-total rejection of surface noise,” the Premium Mono provided a forceful sound with “fine impact” and an “excellent sense of scale,” said AD. “A staggering good value, but for special systems only.” (Vol.32 No.8 WWW)

MIYAJIMA SPIRIT MONO: \$850

Like all Miyajima cartridges, the Spirit Mono uses a proprietary “cross-coil” motor, the fulcrum of which is optimized for linear dynamic performance; like all of the company’s mono cartridges, this one has a single coil and an 18µm-radius spherical stylus tip—and is unresponsive to vertical groove modulations. In short, the Spirit Mono is true mono. According to HR, the low-compliance, moderate-output (0.7mV) Spirit Mono “had a very seductive way of making records sound full-bodied and tangible. Images of musicians were realistically scaled, and there was always a noticeable sense of space.” The Spirit Mono is also available with a 76µm stylus for 78rpm records, or in a version called the Spirit Mono High, with an output of 3.7mV. (Vol.37 No.10 WWW)

ORTOFON 2M BLACK: \$755 ★

Partnered with the budget-priced Audio-Technica AT-PEQ3 phono preamp, the “ridiculously good” Ortofon 2M Black produced a bright, open sound with “surprising heft

and slam.” Because its Shibata stylus is sensitive to rake angle, the 2M Black should be used only with tonearms that permit adjustment of VTA and SRA, Mikey advised. (Vol.32 No.12)

ORTOFON CG 25DI PICKUP HEAD: \$902

Provisional rating. See AD’s review in this issue.

ZU AUDIO DL-103: \$439 \$\$\$ ★

Zu improves on Denon’s original design by trading the DL-103’s plastic body for one built of 6061 “aircraft” aluminum and then binding the magnet, base, and pole piece with a ferrous-based epoxy. This consistently colorful, well-textured, engaging-sounding cartridge built on the Denon’s sense of impact while taming its forward presentation. AD: “The Zu doesn’t just slay giants: It rips their beating heart from their chests, shows it to them, finishes them off, then chases their souls and drags them down to hell. Recommended.” One of HR’s references. (Vol.30 Nos.10 & 12 WWW)

C

DENON DL-103R: \$379 \$\$\$ ★

In production since 1962, the DL-103 is a “resolutely old-fashioned” cartridge with a two-piece plastic body. It uses a two-piece aluminum cantilever to drive a cross-shaped armature wound with several turns of fine-gauge copper magnet wire. Its square-shank nude diamond stylus is ground to a spherical tip. Though the Denon offered excellent bass depth and impact with an overall exciting and “pleasantly forward” presentation, its high-frequency response peak made bright recordings sound “a bit more forward than ideal.” Nonetheless, AD deemed it “a superb cartridge and a remarkable buy.” Compared to Denon’s new DL-A100 100th Anniversary moving-coil phono cartridge, AD’s old DL-103 was tubbier in the bass, but just as dynamic and dramatic. Performance with the a stock spherical stylus tip squeaks into low Class B, he adds, saying that “apart from various Miyajimas and the always-recommendable Miyabi 47, it’s hard for me to think of another standard (non-pickup-head) type of cartridge that has this much impact and drama. (Vol.3 No.9, Vol.30 Nos.10 & 12, Vol.34 No.12 WWW)

DYNAVECTOR DV 10X5: \$550 \$\$\$ ★

Besides subtle changes in magnet material and coil-winding techniques, the latest iteration of Dynavector’s classic moving-coil design has threaded mounting holes for simple installation and alignment. It weighs 7.3gm, has an output of 2.5mV, and uses an elliptical stylus tip and aluminum cantilever. Recommended load impedance is anything greater than 1000 ohms; recommended tracking force is 1.8–2.2gm. Thanks to the Dynavector’s clarity, immediacy, and presence, “music was consistently more dramatic and involving, while never sounding unnecessarily harsh, aggressive, or forward,” said SM. One of ST’s favorite cartridges. AD: “This colorful, well-balanced, chunky-sounding cartridge played music extremely well, with a bonus of very fine stereo imaging....More money can buy more drama, impact, scale, and transparency.... But the Dynavector 10X5 should give you most of what I think you need at a bargain price.” (Vol.26 No.10 WWW; Vol.35 No.11 WWW)

GRADO PRESTIGE ME+: \$150

The polycarbonate-bodied Prestige ME+ Mono has an elliptical stylus at the end of the company’s trademark four-piece (telescoping) aluminum cantilever. Although not a single-coil cartridge, its design is true mono inasmuch as the coils are physically oriented to respond to only lateral modulations. Output is a healthy 5mV, the recommended load is 47k ohms, and recommended VTF is 1.5–2gm. HR found the Grado to be great at suppressing surface noise; more important, on records ranging from solo gut-string guitar to opera, the Prestige ME+ Mono proved to be musically insightful and consistently rewarding: “The Grado’s boldly cinematic sound triggered all the aesthetic emotion I required.” HR has, in fact, purchased the Grado for use as his daily driver. (Vol.37 No.12 WWW)

NAGAOKA MP-500: \$699 ★

The MP-500 has a samarium-cobalt magnet, a permalloy shield casing, a SuperFineline line-contact stylus, and a low-mass boron cantilever. When used with the

Thorens TD 309 turntable, the Nagaoka had a slightly forward, somewhat cool overall sound, but outclassed the TD 309's stock Audio-Technica AT95E in terms of image solidity, detail resolution, and bass extension, said MF. (Vol.34 No.2)

ORTOFON 2M BLUE: \$236 \$\$\$

Affordable moving-magnet cartridge with user-replaceable elliptical diamond stylus. With the Blue mounted in a Music Hall Ikura turntable and arm, BJR found that "the transients and bloom of the string quartet were reproduced with no trace of coloration or smear." Superb transient articulation and dynamics. "Competes with cartridges at double its price. Also an excellent match for both the Music Hall Ikura and VPI Nomad turntables," he adds. (Vol.37 No.12 WWW)

REGA ELYS 2: \$295 \$\$\$ ★

See the RP3 entry in "Turntables." Price is \$200 when purchased with that turntable. (Vol.31 No.7, Vol.34 No.12 WWW)

D

AUDIO-TECHNICA AT95E: \$74 ★

When used with the Thorens TD 309 turntable, the Audio-Technica AT95E produced large, exuberant images, but lacked the solidity, detail resolution, macrodynamics, and bass extension of the more expensive Nagaoka MP-500, said MF. (Vol.34 No.2)

ORTOFON 2M RED: \$99 \$\$\$

The least expensive of Ortofon's 2M moving-magnet cartridges (the series name is shorthand for MM), the Red offers a 5.5mV output, a replaceable elliptical stylus, highish compliance, a recommended tracking force of 1.8gm, and a square-front body with threaded mounting holes, for ease of installation. SM declared the 2M Red's dynamic range "vastly wider" than that of the less expensive Ortofon OM 5E, and praised the new cartridge's clean, fast, grainless sound. SM's verdict: "If you're looking for a high-value cartridge . . . the 2M Red is an excellent place to start." Borderline Class C. (Vol.37 No.5, Vol.38 No.2 WWW)

K

ORTOFON A95 AND CADENZA RED, AUDIO-TECHNICA AT150ANV, & AT7V, GRADO GOLD 1, NAGAOKA MP-300, SUMIKO BLUE POINT EVO III.

PHONO ACCESSORIES

ACOUSTECH THE BIG RECORD BRUSH:

\$36.95 ★

This large-handled brush has soft bristles of both natural hairs and conductive synthetic fibers, and makes dusting LPs nearly foolproof. The 5.5"-wide bristle area easily spans the width of any LP's grooved area. Version with ground wire (\$52.95) does "a pretty effective job of dissipating static electricity," Mikey said. (Vol.31 No.9)

ACOUSTICAL SYSTEMS SMARTRACTOR: \$650

The SMARTractor is a semicircle of mirrored plastic with five single-point alignment grids: Löfgren A/Baerwald IEC, Löfgren A/Baerwald DIN, Löfgren B/IEC, Löfgren B/DIN, and UNI-DIN. A sixth position, labeled UNI-P2S, specifies pivot-to-spindle distance. Each alignment option has its own tiny dimple into which the stylus must fit for the alignment to be perfect. Three pop-in adapters (7.1, 7.15, and 7.2mm thick) ensure a secure fit with a variety of spindles. A sophisticated sighting and magnification system allow the user to precisely set parallax and zenith angle. Though very expensive, the SMARTractor was "the easiest and most accurate alignment device I've used," said Mikey. (Vol.37 No.2)

AESTHETIX MC DEMAGNETIZER: \$199 ★

Battery-powered, reasonably priced, seems to do the job as well as any of them, decided MF. (Vol.25 No.7)

ALLNIC AUDIO SPEEDNIC: \$399

The SpeedNic is a strobing platter-speed checker for 33.33, 45, and 78rpm discs. It uses a gooseneck LED lamp powered by three C batteries and a metal disc that doubles as a record weight. Expensive, but works as advertised, said MF. (Vol.34 No.12)

AUDIO ADDITIVES DIGITAL STYLUS-FORCE

GAUGE: \$79.99

The Audio Additives comes in a nice black box and includes two AAA batteries and a 5gm calibration weight. It has an easy-to-read touchscreen display, a nonmagnetic case, and accurately measures a cartridge's vertical tracking force down to 0.001gm. Precise and a pleasure to use, said SM. (Vol.35 No.11 WWW)

AUDIO DESK SYSTEM VINYL CLEANER: \$3995

(The fully-automatic Audio Desk uses ultrasound and cavitation to clean records, much as an ultrasonic jewelry cleaner does for jewels. The entire cleaning and drying process is completely silent and takes about six minutes. A 20ml bottle of Audio Desk's alcohol-free, biodegradable concentrate (\$19.95) will clean at least 50 records, and the microfiber cleaning barrels (\$99.95 each) are good for 500 to 1000 cleaning cycles. "The Audio Desk Systeme was the most effective, easy-to-use record-cleaning machine I've ever tried," said MF. He bought the review sample. FK was stunned. The Audio Desk not only thoroughly cleaned his LPs, it significantly improved their sound, revealing nuances long locked in the grooves. "If your stereo system cost tens of thousands of dollars and you play a lot of vinyl, you need to check this thing out," he said. (Vol.35 No.6; Vol.36 No.9, Vol. 38 No.3 WWW)

AUDIO INTELLIGENT RECORD-CLEANING FLUIDS ★

MF: "The AI fluids are reasonably priced, easy to apply and (especially) to spread, clean extremely well, and leave no audible residue." "Simple, effective, and distributed by kind people," said SM. Prices are for 16-oz bottles: Enzymatic Formula, \$25; alcohol-free Premium Archivist Formula, \$25; Super Cleaning Formula with research-grade isopropanol, \$25; Ultra-Pure Water (claimed to be 50 times purer than distilled water), \$16. Distributed by Missouri-based Osage Audio Products, LLC. (Vol.30 No.12, Vol.35 No.4 WWW)

CLEARAUDIO OUTER LIMIT TURNTABLE RING:

\$1350 ★

Heavy, stainless-steel ring acts as a speed-stabilizing flywheel, damps the record, and flattens outer-groove warps. However, MF cautioned, its weight means that you can use it only with turntables with massive platters and/or very powerful motors. MF also noted that a centering template would be a happy addition to the package. The Outer Limit was "a pain to center." Nonetheless, it "blackened backgrounds, solidified images, and made them 'pop' in three dimensions." (Vol.24 No.10)

DB SYSTEMS DBP-10 PROTRACTOR: \$49 ★

Fiddly but accurate guide for setting cartridge tangency. JA's preferred alignment protractor. The DBP-10 can be used to gauge alignment accuracy at any point or points between 44 and 153mm from the record spindle. "A hell of a bargain," said AD. (Vol.33 No.6 WWW)

DB SYSTEMS DBP-6MC RESISTIVE

LOADING KIT: \$49 ★

This resistive loading kit is based on a pair of flexible Y-adapters, each having two phono sockets at one end and a single phono plug at the other. It comes with five pairs of color-coded resistive plugs (10, 20, 50, 100, and 200 ohms), as well as a pair of empty plugs into which an alternate resistor value can be soldered. "An ancient but eminently useful thing to have," said AD. (Vol.32 No.8 WWW)

FURUTECH DEMAG RECORD

DEMAGNETIZER: \$2715 ★

Who knew?!?" Like the Acoustic Revive RL-30 Mk.3, the DeMag removed glare and enriched the midband of edgy-sounding LPs. Users should make sure the Furutech's uncovered surface is clean before putting freshly scrubbed vinyl on it, warned MF. (Vol.29 No.10)

K-A-B SPEEDSTROBE DIGITAL PHONOGRAPH

SPEED READOUT: \$109.95 ★

Easy-to-use strobe disc simplifies precision adjustment of turntable speeds from 33 1/3 to all of the variations on "78." "It's just fantastic," effused J-10. "It looks cool, and it's a snap to perfectly set the speed." (Vol.19 No.2)

KEITH MONKS AUDIO WORKS MK.VII OMNI

RECORD-CLEANING MACHINE: \$5995 ★

The late Keith Monks's son, Jonathan, has taken over production of this venerable classic, moving manufacturing

to a dedicated facility on the Isle of Wight and expanding the line to include new models, new platter mats, new cleaning brushes, and specially formulated cleaning fluids. With its solid idler-driven platter, refined cabinetry, and improved internal wiring, the new machine outclasses the old. After cleaning a record, AD noted clearer instrumental voices and greater low-level detail. The Omni was "so easy to use—so pleasant to use—that the prospect of cleaning LPs became a happy one." Price is for white finish; English oak adds \$300. (Vol.32 No.5 WWW)

KEITH MONKS DISCOVERY ONE

RECORD CLEANING MACHINE: \$2495 \$\$\$

The discOverOne is both the newest and the least expensive record-cleaning machine from the company that created the genre. The new machine has at its core an off-the-shelf direct-drive record player, the tonearm of which is modified to accommodate both a fluid-evacuation system and a means of delivering and refreshing the nylon thread used to cushion the vacuum nozzle. Money is also saved by eliminating the automated fluid-dispensing system of older, more expensive Keith Monks machines, though that can be retrofitted to a discOverOne for \$700. AD observed that the new machine's vacuum-drying function was slower than that of its predecessors, but no less effective—and surprisingly quiet. He quibbled with some construction details and was puzzled that the stripped-down machine was actually larger than its stablemates, but nonetheless declared the discOverOne "an accessory of notably high value—and notable worth." (Vol.37 No.4 WWW)

KERRY AUDIO DESIGN F2 TITANIUM TONEARM

COUNTERWEIGHT: \$129 ★

Titanium replacement counterweight for Rega tonearms. Machined with three sets of thin contact rails that ride on the Rega arm's counterweight stub. The sonic improvement was "amazing," thought MF; he found the F2 gave better bass response, greater low-frequency extension and control, and an improved sense of overall weight and tonal richness. (Vol.26 No.5)

LAST POWER CLEANER FOR LPS: \$44 3/4-oz BOTTLE, WITH APPLICATORS ★

This small bottle of Freon-free cleaner is enough to treat 75 LPs. JE found just three drops sufficient to remove dirt, dust, and grime from garage-sale records, though he discovered that a subsequent wash with his VPI HW-17 was still required to reduce groove noise to acceptable levels. "A worthwhile companion to LAST's wonderful Record Preservative." (Vol.17 No.5)

LAST RECORD PRESERVATIVE, WITH

APPLICATORS: \$50 2-oz BOTTLE ★

Significantly improves the sound of even new records, and is claimed to make them last longer. "I unhesitatingly recommend LAST Record Preservative," said Mikey, whose records sound as quiet now as they did when he first started using the treatment, over 25 years ago. AD is not a fan, however, though he does admit that LAST, if used correctly, does no harm. \$185/8oz, \$350/16oz. (Vol.5 No.3, Vol.30 No.10)

LAST STYLAST STYLUS TREATMENT:

\$36 1/4-oz BOTTLE ★

Stylus treatment designed to reduce friction between groove and phono cartridge. Some manufacturers caution against it, claiming it migrates up the cantilever and attracts dust, thus clogging the armature. One reader suggests applying treatment to brush rather than stylus, which would reduce the possibility of over-applying. MF has found STYLAST effective, but expresses concern over possible cartridge damage. (Vol.18 No.12)

LYRA SPT: \$50/5ML BOTTLE ★

Includes a small, wedge-shaped applicator with which MF brushed a drop of this fluid carefully, back to front, along the stylus. Don't get any on the cantilever, he warned, and wait 10 seconds before playing a record. Pricy fluid said to lubricate the stylus, to improve S/N ratio and trackability, and to last for one side's playing time. Mikey thinks he noted a slight sound-softening effect, but wouldn't bet the farm on it. (Vol.23 No.11)

MERRILL G.E.M. DANDY HYDRAULIC

RECORD CLEANER: \$149 ★

Designed to sit in a sink, the “rudimentary but ingenious” G.E.M. Dandy is an inexpensive manual record-cleaning rig that uses a proprietary cleaning solution comprising a degreasing detergent and an alcohol-based carrier, followed by a tap-water rinse. Made mostly of PVC tubing, the Dandy has a vertically mounted clamping mechanism that permits easy rotation of the secured LP. Also included are a faucet-coupling adaptor, a protractor, and a length of clear plastic tubing with a pressurized water nozzle. “Until you get the hang of it,” Mikey warned, “the G.E.M. Dandy can make a mess.” Despite his best efforts, water invariably seeped into the Dandy’s protective cups to wet the outside edges of record labels. However, the Dandy proved “terrific” for cleaning water-damaged and crudded-up records, MF concluded. (Vol.31 No.9)

MILTY ZEROSTAT 3: \$100 ★

The gold standard of static-discharge devices,” the ZeroStat is a gun-shaped gadget with two heavy-duty piezo-electric crystals and a patented compression trigger. Slowly squeezing and releasing the trigger produces a neutral static condition, thus removing static cling from record surfaces. Said to be good for at least 10,000 squeeze cycles. SM uses the Zerostat religiously: “Wouldn’t want to live without it,” he declares. (Vol.30 No.10, Vol.35 No.5 WWW)

MOBILE FIDELITY GEO-DISC ALIGNMENT TOOL: \$49.99

The size and shape of an LP, with a spindle hole at its center and clear instructions printed right on its surface, MoFi’s Geo-Disc is a simple and affordable cartridge-alignment tool. Using the Geo-Disc to install cartridges on the VPI Traveler and various Rega tables, SM easily and consistently achieved accurate alignment. Diehard analog hobbyists will still want the versatility of more complex tools, such as the DB Systems DBP-10, but “the Geo-Disc is the only alignment protractor most vinyl enthusiasts will ever need,” said SM. (Vol.35 No.11 WWW)

MUSICAL SURROUNDINGS FOZGOMETER: \$300 ★

The Fozgometer allows its user to easily check phono cartridge channel separation and crosstalk. (It uses a log-ratio detector developed by Jim Fosgate for the steering-logic circuits of surround processors.) Housed in an aluminum case, it runs on a 9V alkaline battery and has an On/Off switch, left and right RCA input jacks, an analog signal meter, and three LEDs labeled Left, Center, and Right. “Well made, really easy to use, and accurate,” said Mikey. “The Fozgometer gets my highest recommendation!” However, while the Fozgometer provides useful measurements for cartridges with similar channel-separation numbers, it can lead to unusual and undesirable results with cartridges that have high levels of interchannel crosstalk disparity, cautioned MF. (Vol.33 Nos.5 & 11)

NITTY GRITTY MINI PRO 2

RECORD-CLEANING MACHINE: \$1459 ★

NITTY GRITTY 2.5FI VACUUM

RECORD-CLEANING MACHINE: \$1015 ★

NITTY GRITTY 1.5FI

RECORD-CLEANING MACHINE: \$935 ★

The Mini Pro is a semiautomatic machine that cleans both disc sides simultaneously. The 1.5 is identical to the 2.5 but substitutes black-vinyl woodgrain for the latter’s genuine oak side panels. Instead of a vacuuming “tone-arm,” as on the professional Keith Monks machine, the NG cleaner uses a vacuum slot, with the record cleaned by fixed, chassis-mounted “lips.” Gunk-laden fluid is vacuumed off. Cleaning is efficient and as good as Nitty Gritty’s Pro, at a significantly lower price, though it takes twice as long, cleaning each side of an LP in turn. Don’t smear the schmutz from one record to another, MF warned; he suggests manual pre-cleaning of records for best results. While the vacuum-cleaning Nitty Gritty does a job on dusty albums nearly equivalent to that of the similarly priced VPI HW-16.5, CG felt that the VPI’s hard-bristled brush did better with really dirty LPs than did NG’s velvet one. He found the effect of both was to produce a less colored, more detailed midband sound from LPs, as well as provide the expected reduction in surface noise. (Vol.8 No.1, Mini Pro; Vol.7 No.5, Vol.8 No.1, Vol.23 No.6, 2.5Fi;

Vol.17 No.5, 1.5Fi)

NITTY GRITTY 2.5FI-XP

LP CLEANING MACHINE: \$1115

Nitty Gritty’s latest record-cleaning machine adds the convenience of two separate fluid chambers and hand pumps for quicker, easier cleaning sessions, and has a new venting system that allows the machine’s motor to run cooler for longer periods of time. Like other Nitty Gritty machines, the 2.5Fi-XP forgoes a platter in favor of a round, label-sized disc, making the Nitty Gritty more compact than most other record-cleaning machines. The 2.5Fi-XP managed to quickly and thoroughly clean and dry very dirty LPs. “Two wet thumbs up!” said Mikey. (Vol.34 No.5)

OCTAVE AUDIO/SCHOPPER MODIFICATIONS FOR THORENS TD 124 ★

Replacement parts for vintage Thorens TD 124 turntables are manufactured in Switzerland by Schopper A.G. and sold in the US by Octave Audio. A new drive belt (\$35), new rubber “mushrooms” for isolating the player from its plinth (\$60/set of four), and a fresh bottle of Thorens oil (\$25) got AD’s turntable up and running. However, the biggest improvements to the 124’s performance came from new rubber grommets for isolating the motor from its surroundings (\$50/set of six) and Schopper’s platter-bearing rebuild kit (\$90), complete with new gasket, thrust plate, and bolts. The Schopper mods “created a record player that could compete with virtually anything I’ve heard in terms of treble openness and clarity, midrange detail, and bass extension,” said Art. (Vol.31 No.5 WWW)

ONZOW ZERO DUST: \$69 ★

A circular mound of semi-gelatinous goop in a box, onto which you gently lower your stylus,” said MF. Use is simple: “After a few seconds, you lift the stylus, and it’s as clean and residue-free as the proverbial whistle....Upside: no potentially dangerous brushing, and no fluids. Downside: if you like to leave your platter spinning, you’ll have to stop it each time, or find another steady surface upon which to perform the operation.” (Vol.25 No.3)

ORB PHONO ACCESSORIES: \$350–\$480 ★

The Sakura handheld static-discharge eliminator (\$350) is a variant of the Furutech deStat SNH-2, and the SFM-2 stylus-force gauge (\$480) and CRE-2 Cartridge Exciter (\$399) are variants of similar products from Air Tight. While pricey, the ORB Phono Accessories are beautifully made and work well, said Mikey. Available directly from www.twinaudiovideo.com. (Vol.33 No.12)

REGA R808 2MM SPACER: \$39

This simple stainless-steel spacer allows owners of Rega tonearms to adjust the height of their arms to accommodate non-Rega cartridges. Fidgety but worth the hassle, says SM. With the spacer in place and Dynavector’s DV 10X5 moving-coil cartridge mounted on his Rega P3-24, SM heard improved clarity, impact, immediacy, and soundstage depth. (Vol.35 No.11 WWW)

REK-O-KUT STYLUS FORCE GAUGE: \$24 ★

The Rek-O-Kut Stylus Force Gauge is a big, easy-to-use balance beam that comes with a total of 5.75gm in plastic weights, for use in various combinations. For cartridges designed to play at downforces of 3.5gm or more, the Rek-O-Kut is “a good, cheap solution,” said AD. (Vol.32 No.2 WWW)

SHURE SFG-2 STYLUS-FORCE GAUGE: \$40

Shure’s classic balance-beam stylus-force gauge is simple to use and accurately measures a cartridge’s vertical tracking force between 0.5 and 3.0gm. At less than half the price of the Audio Additives, the Shure is a great little tool, but the AA is easier to use, more precise, and provides an extra measure of comfort, said SM. (Vol.35 No.11 WWW)

SOUNDSMITH EZ-MOUNT SCREWS: \$39.95 ★

SoundSmith’s sets of knurled screws, designed to fit most brands of tapped cartridge, made installing cartridges much easier, said Mikey. Each set includes pairs of 10mm-long screws made of four different materials—nylon (1.04gm/pair), aluminum (2.06gm/pair), stainless steel (5.80gm/pair), and brass (6.24gm/pair)—so that users can easily match a tonearm’s effective mass to a cartridge’s compliance. (Vol.33 No.12)

SPIN CLEAN RECORD WASHING SYSTEM:

\$79.95 \$\$\$ ★

Package includes a plastic vat, two brushes, two rollers, a 4-oz bottle of concentrated cleaning fluid, and washable drying cloths. Three sets of slots allow cleaning of 7”, 10”, and 12” records. Two velvet-like brushes clean both sides of a record simultaneously as the user rotates the record within the appropriate slot. Though “not nearly as convenient or as efficacious as a vacuum cleaning system,” the Spin Clean Record Washing System “got the job done,” said Mikey. Spin Clean claims a single vat of fluid can clean up to 50 records, but MF suggests refreshing the vat more often. A 16-oz bottle of fluid costs \$20; a package of five drying cloths costs \$14.99. (Vol.33 No.2)

SUTHERLAND TIMELINE: \$400 ★

The Timeline is a device for testing a turntable’s accuracy of speed. Housed in a solid disc of aluminum and Delrin that fits over the platter spindle, the Timeline uses eight laser-projected timing marks with a claimed accuracy within two parts per million. “Unless your wall has hash marks, there’s a bit of subjectivity involved, and at \$400 the Timeline isn’t cheap,” said MF. “Indispensable,” said BD, who used the Timeline to measure, set, and monitor the speeds of his Spiral Groove SG-2 and VPI HR-X turntables. (Vol.33 Nos.3 & 12 WWW)

THE DISC DOCTOR’S MIRACLE RECORD

CLEANER: \$27.00/PINT PLUS \$7.15 S&H ★

THE DISC DOCTOR’S STYLUS CLEANER:

\$28.00/17ML PLUS \$3.80 S&H

Chemist Duane Goldman, the Disc Doctor, claims that his Stylus Cleaner—a mixture of sub-micron filtered water and separately sub-micron filtered +99.5% 1-propanol alcohol—leaves no residue on the stylus or cantilever. Comes with a stiff brush for the first wet cleaning of the stylus. After that, the good Doctor recommends a natural-bristle artist’s brush that’s been cut down at an angle or been given a crew cut, as Mikey put it. Quart of fluid, \$40.75/\$8.65 S&H; half gallon, \$64.75/\$10.00 S&H; size A for LP brushes, \$44.95/pair/\$4.55 S&H; size B for 45s, \$31.95/pair; replacement pads for brushes, \$16.50/4; QuickWash solution, quart, \$27; half gallon, \$44.25. (Vol.20 No.3, Vol.23 No.11, Vol.24 No.7)

VINYL FLAT LP FLATTENER: \$119.95

Made in the US, the Vinyl Flat uses pressure, heat, and time to repair warped and dished LPs. The basic package contains two Groovy Rings (LP-sized sheets of black plastic), two heavy metal plates, a few pieces of hardware, a nice storage case, and a table of heating times and cooling cycles. The optional Groovy Pouch (\$79.95) is a soft, specially made enclosure that uses carbon-fiber heating elements to surround the Vinyl Flat with gentle, even heat. Using his oven or the Groovy Pouch, SM was able to successfully flatten even severely warped and dished LPs, but cautions: “Be sure that your oven’s temperature is properly calibrated before baking your precious LPs.” (Vol.35 Nos.4 & 5 WWW)

VPI HW-27 TYPHOON RECORD-CLEANING MACHINE: \$2500 ★

The Typhoon is smaller, quieter, and more attractive than earlier VPI record-cleaning machines, “with the look and feel of a turntable.” Its vacuum pump, twice as powerful as that used in the HW-17, proved capable of drying an LP in a single rapid revolution. “The Typhoon is a clean, efficient record-cleaning machine that’s almost fun to use,” said MF. (Vol.30 No.5)

VPI HW-17 RECORD-CLEANING MACHINE:

\$1800 ★

VPI HW-16.5 RECORD-CLEANING MACHINE:

\$650 ★

Clearly an industrial-quality machine of reassuring quality, the VPI 17 cleans one side at a time, semiautomatically, and is slower than the Nitty Gritty. “Best I’ve used,” says LA. Latest version has a heavier-duty vacuum system. The 16.5 is a manually operated version with a noisier motor. Adjusts automatically to thickness of record; gets hot quickly. Of the HW-17F, MF says, “Fast, convenient, beautifully constructed, and can be used indefinitely without overheating. The fan version of the 17 is well worth the extra money for those post-garage-sale/record-convention

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Decoupled Double Dome tweeter

analog orgies when only cleaning the whole pile will do." "The 17F is probably the best record-cleaning machine available," MF concluded; "a true workhorse." (Vol.8 No.1, Vol.19 No.6, Vol.23 No.6, HW-17F; Vol.5 Nos.7 & 9, original HW-16; Vol.17 No.5, Vol.19 No.6, HW-16.5)

VPI VTA ADJUSTER FOR REGA TONEARM: \$150 ★ Seems to maintain the desired rigidity while allowing for about a full inch of vertical adjustability. It's nicely machined from aluminum and has a sturdy mounting collar." Its only downside, reported MF, is that it won't fit into a standard Rega opening. Drill it out yourself or send your armboard to VPI. (Vol.23 No.6)

PHONO PREAMPS/MOVING-COIL STEP-UP DEVICES

A+

AUDITORIUM 23 HOMMAGE T1 & HOMMAGE T2: BOTH \$4995 ★

Over twice the size and weight of the less expensive Standard transformer, the Hommage T1, designed as a companion to Auditorium 23's Solovox loudspeaker, is a statement product. It has a textured-paint finish, attractive white-oak endcaps, and input and output resistances of 3 and 2530 ohms, respectively. The Hommage T1 shared the Standard's excellent timing, flow, and overall drama, but produced a much larger soundstage; and while the Audio Note AN-S8 was slightly richer, the Hommage T1 proved more exciting, said AD. Pairing the Hommage T1 with an EMT OFD 25 mono pickup head resulted in unsurpassed musical and emotional impact, he noted. The Hommage T1 provided more timbral color, more shimmer, and a larger overall sound than did Bob Sattin's CineMag 3440A device, found AD. Outwardly identical to the T1, the Hommage T2 takes the same uber-perfectionist approach and applies it to EMT's high-output, high-impedance cartridges and pickup heads: the TSD 15, the OFD 25, and so forth. Unusually for a transformer designed around such motors, the Hommage T2 has a high turns ratio, and consequently very high gain; it shouldn't work—yet it does, brilliantly. The combination of the Hommage T2 and an EMT OFD 25 delivers the most dramatically impactful, tonally vivid phono playback ever heard by AD, who adds, "The T2 is so good, it's sick!" (Vol.30 No.10, Vol.32 No.8, Vol.33 No.6 WWW)

BOULDER 2008: \$38,000 ★

Despite everything else he had ever heard or reviewed, MF could never have been prepared for what the 2008 offered. He was taken to a higher level: "What the 2008 delivered was the music's meaning....It was like analog on acid. Every note, every musical gesture became the most important, most profound note ever struck—until the next one....The 2008 gripped, mesmerized, suspended time, and communicated profoundly." The sound, MF raved on, was "faultless in every area of performance: soundstaging, imaging, dynamics, harmonics, frequency extension, solidity, 'bloom'—you name it." MF had no complaints: "As with the Continuum Caliburn turntable, the 2008 belongs in Class A+—the single most impressive electronic audio component I've heard." Compared with the one-third-the-price 1008, the 2008 did sacrifice a little of the 1008's midrange richness for better bass control and greater top-end extension, said MF. (Vol.25 No.7, Vol.33 No.7 WWW)

VITUS AUDIO MP-P201 MASTERPIECE: \$60,000 ★

The massive, two-box MP-P201 Masterpiece Series Phono Preamp includes switchable, independently configurable balanced and single-ended inputs and a single balanced output. Available are a choice of four dealer-installed modules for resistive loading, each including 16 different resistances. The MP-P201's dynamic presentation was "nothing short of ridiculous"; its bass extension, control, and weight were "granitic"; speed, transparency, three-dimensionality, frequency extension, rhythmic ability, and musical grip were unsurpassed. "You need to hear it," gushed MF. JA's measurements revealed excellent channel matching and almost zero RIAA error, but nothing to

indicate why Mikey was so taken by the Vitus's sound. (Vol.33 Nos.7 & 9 WWW)

YPSILON VPS-100: \$26,000 ★

Made in Greece, the moving-magnet VPS-100 is beautifully built and housed in a substantial aluminum case. Joining the Boulder in Class A+, it uses a 6CA4 rectifier tube and choke filter, while RIAA is accomplished passively with zero feedback using a transformer-based LCR network. All internal wiring is done by hand, point to point. While it couldn't quite match the bottom-octave punch, definition, and extension of the Pass Labs XP-25, the Ypsilon produced a more transparent, silky, airy overall sound, said MF. "It produced an absolutely intoxicating blend of stupefyingly extended high frequencies, resolution, clarity, and transient precision, along with tight, deep, nimble, nonmechanical bass, and an ideally rich midrange," said MF and has since purchased the review sample. (Vol.32 No.8, Vol.34 No.3)

A

B.M.C. AUDIO PHONO MCCI: \$4190

The Phono MCCI moving-coil phono preamp uses a current-injection input and has a fully balanced, single-ended, class-A output stage. High-quality parts include 10 ultralow-noise transistors, balanced-current capacitors, inductance-free polystyrene capacitors, thin-film metal resistors, gold-plated printed circuit boards, and a shield of copper-plated iron. Internal jumpers allow the user to select among three levels of gain, standard or Neumann RIAA, a subsonic filter, and various bass settings. Though it lacked some bass control, the MCCI produced "liquidity and harmonic richness along with warmth, speed, drive, three-dimensionality, and pitch-black backgrounds," said Mikey. "B.M.C.'s Phono MCCI is exceptional, and easily among the best MC phono preamps available today at any price," he concluded. On the test bench, the MCCI exhibited low noise and low distortion. (Vol.36 Nos.6 & 9 WWW)

BOULDER 1008: \$13,000 ★

The impeccably built 1008 is a fully balanced, dual-mono design with XLR inputs and outputs. In addition to RIAA, the 1008 includes the Decca, Columbia, and EMI curves for LPs released before 1954, and DIP switches mounted on the Boulder's personality cards select between MM and MC cartridges. It had a slightly soft overall sound, with a bloomy midrange and a forgiving top end, but was capable of producing massive dynamic swings, said MF. "Superb measured performance" and "a standard of construction that is to die for," praised JA. (Vol.33 No.7 WWW)

CHANNEL D SETA MODEL L: \$3799 ★

Designed to take full advantage of Pure Vinyl's digital RIAA correction, the beautifully built Seta Model L includes balanced and single-ended inputs, balanced unequalized outputs, variable gain, and a built-in, rechargeable battery power supply. Recordings made using the Seta Model L's optional RIAA-equalized outputs were "models of clarity, definition, tonal accuracy, detail resolution, and spatial coherence," said MF. "There is no doubt that the Seta Model L has been superbly engineered," praised JA. Compared to the Liberty B2B-1, the Seta Model L lacked some mid-bass energy, but did a better job of preserving recorded ambience, said JA, who also admired the Channel D's superb measured performance. Optional internal RIAA compensation module adds \$1199. (Vol.33 No.8; Vol.36 No.12 WWW)

DYNAMIC SOUNDS ASSOCIATES PHONO II: \$13,500

The Phono II is a versatile, full-function phono preamp with: three XLR/RCA MM/MC inputs, each independently adjustable for resistive or capacitive loading via front-panel buttons; six loading choices; four gain levels (40, 50, 60, and 66dB); and front-panel buttons for selecting mono playback, inverting polarity, activating a high-pass filter, and adjusting azimuth. Four all-FET gain stages use internal feedback, with passive RIAA equalization; the dual-mono design uses no global feedback and no step-up transformers. Connecting, configuring, and using the Phono II was a simple pleasure. The overall sound was extremely fast and transparent, with crystalline highs, clean attack transients, and a full bottom end, said

Mikey. However, while the Phono II was generally quiet, it produced some odd mechanical noises when partnered with certain cartridges. The "odd mechanical noises (produced) when partnered with certain cartridges," which last time relegated the DSA to Class B, turned out to be motor induction leakage that a running modification has remedied—hence this thus well-deserved kick upstairs to Class A. (Vol.36 No.10)

HAGERMAN AUDIO LABS TRUMPET

REFERENCE: \$7200

Hagerman's beautifully built, top-of-the-line phono preamp uses four each 12AX7 and 12AU7 dual-triode tubes in a class-A, zero-feedback design. It employs choke-regulated power supplies; DC heaters; passive split RIAA equalization; and a balanced, JFET-based, moving-coil input stage. Six front-panel pushbuttons allow the user to choose among four choices of EQ (AES, Decca/EMI, RIAA, Columbia/NAB), stereo or mono playback, MM or MC input, polarity, two options of MC gain, and eight options of MC loading. Though it lacked some bass definition and dynamic impact, the Trumpet produced a relaxed, graceful sound, with an excellent sense of space, a rich midrange, and generous sustain, said Mikey. (Vol.37 No.2)

HANIWA AUDIO SYSTEM HEQA01: \$5000 ★

The nicely made HEQA01 has moving-magnet and moving-coil inputs and a built-in degausser. It uses electromagnetic damping to permit cartridge tracking as low as 0.6–1.0gm. When used with Haniwa's HCTR01 MC cartridge, the HEQA01 produced a fast, clean sound with exceptional transparency, spaciousness, and three-dimensionality, but lacked some midrange warmth, said MF. Sold direct from Kubotek USA with a money-back guarantee. (Vol.34 No.11)

KONDO GE-1: \$12,900

Made in Japan, the GE-1 is a moving-magnet (34dB of gain) phono preamplifier with separate, switchable input pairs for two phono cartridges. It uses three Electro-Harmonix 6072 dual-triode tubes, which provide a two-stage, zero-feedback gain circuit, and a cathode-follower final stage for low output impedance. Like Kondo's matching Overture integrated amplifier, the GE-1 uses high-quality parts throughout, including silver wiring, handmade capacitors, bespoke resistors, a solid-copper ground plate, and a tuned chassis made from a combination of steel, brass, and aluminum. Though it was leaner and less boldly colorful than AD's Shindo Masseto, the GE-1 sounded more open and modern, with a pleasantly extended top end and exceptional senses of scale and drive. (Vol.36 No.11 WWW)

LAMM INDUSTRIES LP 2.1: \$8690

The LP2.1 Deluxe—the adjective refers to this version's upgraded power supply, polystyrene bypass caps, and 20.5-lb damping panel—is a single-box stereo phono preamp with tube rectification and pairs of Russian-made 6C3P and 6C45P-E triode tubes for the signal path. The dual-mono design has separate, switchable RCA-jack inputs for MM and MC cartridges, the latter of which address a pair of Jensen 1:10 step-up transformers for additional gain. Controls are minimal, with no provisions for varying the 400-ohm load of the MC inputs—although, as MF observed, that figure is "a good compromise for cartridges with internal impedances of about 40 ohms or less." MF found the "smooth-sounding, well-detailed" LP2.1 to be remarkably free from noise—even quieter than some solid-state phono preamps—and observed that "the sound of MCs through the LP2.1's transformers was impressively fast, detailed, open, dynamic, and resolving—all without added glare, grain, or etch." At the same time, he was even more impressed when preceding the Lamm's MM stage with the Ypsilon MC-10L step-up transformer (\$6000), which "seriously upped the sound quality along with the price." Still, MF considers LP2.1 Deluxe "fully competitive with anything at or near that price." (Vol.38 No.3)

LEHMANN DECADE: \$2099

AD tends to prefer the sound, with an MC phono pickup, of a phono preamplifier plus an MC step-up transformer—yet was pleasantly surprised when he replaced both with the Lehmannaudio Decade. This two-chassis, solid-state phono stage offers adjustable input impedance and



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gain—the latter up to 66dB, for very low-output cartridges—and a switchable soft-rolloff filter. When substituted for both the CineMag Sky 30 transformer and the phono section of his Shindo Masseto preamplifier, the Decade presented AD with exceptional clarity, believable colors and textures, and “satisfying” force: “Yes, the Lehmannaudio preamp could be made even more explicitly forceful with the addition of a good transformer. . . . Considered on its own, the Lehmannaudio is easily the most impactful solid-state phono preamplifier I’ve ever experienced.” (Vol.37 No.5 WWW)

MICHAEL FEHLAUER MONOPHONIC VARIABLE EQ PHONO STAGE: \$1500 \$\$\$

Designed and made in Germany by mono enthusiast Michael Fehlauer, the Monophonic is a single-channel, solid-state phono preamp with user-selectable gain for moving-coil, high-output moving-coil, and moving-magnet cartridges. Rather than using traditional switches, the Monophonic’s equalization settings are arrived at with two stepless, continuously variable potentiometers, thus offering far greater potential for fine tuning and ease of use. Included is a list of suggested settings for the EQ schemes of various record labels, including the modern RIAA standard. The sound was “stunningly clear, yet very colorful and well textured,” and Fehlauer’s suggested EQ settings were almost always dead on, said Art. “The Monophonic didn’t just sound good: It was fun. And it made my record collection seem even bigger than it is by making it even more listenable than it was.” (Vol.36 No.12 WWW)

NAGRA BPS: \$2200 ★

The tiny, lightweight, battery-powered BPS is loosely based on Nagra’s more expensive VPS, but uses bipolar transistors instead of tubes. It provides 51dB gain in MM mode and 62dB in MC. With its “upfront transient speed, clarity, and focus,” the BPS was “a more neutral, accurate phono preamp than the lush, romantic VPS,” said Mikey. Overall, the BPS sacrificed sustain and richness for attack and rhythm. Compared to the Audio Research PH7, the BPS was “lean, fast, tight, and clean,” lacking delicacy and harmonic complexity. MF: “If your system needs an injection of excitement, the BPS is guaranteed to do just that.” While the BPS sounded good plugged into the AC, it sounded better when powered by its own 9V battery, added FK, who bought the review sample. (Vol.32 Nos.6, 8, & 10 WWW)

PARASOUND HALO JC 3+: \$2995 \$\$\$ ★

The Halo JC 3 is a true dual-mono design with a large R-core transformer power supply. Construction quality is first rate, top-shelf parts are used throughout, and the stout, heavy chassis is beautifully finished. In the JC 3, designer John Curl favored purity over adjustability, offering minimal loading options: 100 ohms or 47k ohms for moving-coil cartridges and 47k ohms for moving-magnet cartridges. Its fully direct-coupled RIAA equalization circuit is based on the circuit used in Curl’s famed Vendetta Research SCP-2, while the JC 3’s output stage is a true dual-differential, balanced design. In addition, the JC 3 has a built-in AC line conditioner, and its power supplies are modeled after those found in the extremely quiet JC 2 line stage. Though it lacked the dynamics and transparency of either the Pass Labs XP-25 or Ypsilon VPS-100, the JC 3 combined superb musical grip and control with a timbrally and texturally ideal midrange. “The JC 3 represents the best current value in a phono preamp that I know of,” said MF. Though it lacked the Sutherland 20/20’s tonal richness and punchy sense of pace and drive, the Halo JC 3 produced a detail-rich sound with tight, extended lows, a clean midrange, and carefully drawn images on a huge, open soundstage. “If your tastes run to purity, clarity, neutrality, and detail, you’ll be hard-pressed to find a better phono stage for anywhere near \$2350,” BD concluded, recommending a Class A rating. The JC 3 sounded remarkably similar to BJR’s reference, the Vendetta SCP-2, but lacked some high-frequency purity and ambience recovery. JA noted superb measured performance. (Vol.34 Nos.3 & 10; Vol.35 No.2 WWW)

PASS LABS XP-25: \$10,600 ★

This two-chassis, moving-coil/moving-magnet design offers two inputs and has front-panel controls for several

options of gain, capacitive loading, and resistive loading. It uses Pass’s XP-20 power supply, which comprises low-noise transformers, RC filtering, and capacitive multipliers. The XP-25’s first gain stage uses low-noise transistors and a controlled open-loop gain, while its circuit employs new low-noise, thin-film, surface-mount resistors. The XP-25 produced deep bass, explosive dynamics, and good three-dimensionality, but lacked the Ypsilon VPS-100’s top-end air, transparency, and transient speed, said MF. (Vol.34 No.3)

PBN OLYMPIA PX-1: \$22,000

Although MF wasn’t impressed with the styling of this American-made two-box phono pre—okay, he called it “butt-ugly”—he found a lot to love in its musical performance. Designed and made by Peter B. Noerbaek, the Olympia PXi is a fully balanced, dual-differential pre using cascoded JFETS in its first gain stage and a complementary MOSFET source-follower in its output stage. Gain is switchable between 60 and 70dB, and the user can select among six different resistive loads, ranging from 50 ohms to 47k ohms; input and output jacks are XLR only. As for the Olympia PXi’s sound, the prospective owner is advised: “Strap yourself in!” MF elaborated: “The grip the PBN had on the music, from top to bottom of the spectrum, was immediately obvious and almost physically demanding to experience—but in a relaxed and very pleasing way. Dynamics were limitless. The terms bass extension and bass control took on new meanings.” For all that, MF wrote, “the PBN was also able to express instrumental liquidity and textural subtlety.” (Vol.37 No.9)

PHASEMATION EA-1000: \$15,000

The Japanese-made EA-1000 is built into separate left- and right-channel cases of copper-plated steel adorned with thick, brushed-aluminum faceplates. The first selector knob on each allows the choice between RIAA stereo and three mono curves—Columbia, Decca frrr, and an “all-purpose 78rpm” curve—while additional controls adjust MC impedance and gain and select among three inputs: two MC, one MM. The single-ended, hybrid EA-1000 uses three dual-triode tubes per channel, and its hefty outboard power supply is built around a 5U4G rectifier tube. In addition to praising its very quiet performance, MF noted the EA-1000’s “textural delicacy and detail” and its knack for delivering “rich, saturated harmonic colors.” Through the Phasemation, he said, “music was finely and delicately drawn, sounding sweet but not cloying, feathery but not smotheringly soft.” MF cautioned fans of large-scale music that, through the EA-1000, “the bottom-most frequencies were somewhat less than fully realized.” (Vol.37 No.9)

ROGERS HIGH FIDELITY PA-1A: \$7400

Roger Gibboni’s first phono preamplifier uses three tubes per channel for MM cartridges, and adds to its MC inputs a pair of internal step-up transformers. (Even more gain can be had, albeit at a slight cost in noise, by substituting for the PA-1A’s 12AU7 tubes a spare pair of 12AX7 tubes, also supplied.) Capacitive and resistive loading are user adjustable, and a mute switch is included. Build quality is, as MF wrote, “impressive by any standard,” and tube life is expected to be in the neighborhood of 10,000 hours. MF praised the PA-1A’s “glorious, mesmerizingly rich midrange, and the overall drive and musical flow for which tubed phono preamps are renowned,” while noting “the less-than-taut-and-punchy bottom end for which they’re also known.” MF also discovered in the Rogers phono pre some susceptibility to hum with both MM and MC cartridges, necessitating care with cable choice and physical placement. His verdict: “If you listen mostly to acoustic jazz and/or classical music, the Rogers PA-1A, paired with a cartridge that’s fast, open, and extended on top, could be your ticket to long-term satisfaction.” (Vol.37 No.12)

SIMAUDIO MOON EVOLUTION 810LP: \$13,000

The first phono preamp in Simaudio’s Moon Evolution line of cost-no-object designs, the fully balanced, dual-mono 810LP is a beautifully built, rigid component weighing 40 lbs and measuring 18.75" W by 4" H by 16.81" D. Its four-layer circuit board uses a five-point, gel-based, floating suspension system derived from the Moon Evolution 850P preamplifier, while the power supply features a

high-quality toroidal transformer and multiple filtering and voltage-regulation stages. DIP switches on the bottom panel provide unprecedented configurability: 64 impedance loads, from 12.1 ohms to 47k ohms; 16 capacitance settings, from 0 to 1120pF; 16 gain settings, from 40 to 70dB; and RIAA or IEC equalization. The 810LP had a cool, dry overall sound with exceptional transparency, clean transients, muscular macrodynamics, and delicate microdynamics, but lacked harmonic richness, soundstage size, and top-end air, said MF. Can be upgraded with Simaudio’s Moon Evolution 820S power supply (\$8000). (Vol.35 No.12, Vol.37 No.11, 820S WWW)

SUTHERLAND ENGINEERING PHONO BLOCK: \$10,000/PAIR

The Phono Block is a stripped-down, optimized, no-compromise design made of two completely separate but identical monophonic units. Each Phono Block itself comprises two heavily shielded, individual subchassis, one for the power supply and one for the audio stage, linked by the front and rear panels. The Phono Block offers one pair of inputs, two parallel pairs of outputs, a choice of three grounding schemes, and a built-in white-noise generator. Plug-in cards allow the user to select loading and gain. Like Sutherland’s battery-powered designs, the Phono Block had an uncanny ease and purity but a more realistic and energetic sense of timing and pace, and created a larger, more enveloping soundstage, said BD. JA noted superb measured performance. (Vol.35 No.1 WWW)

THRAX ORPHEUS: \$21,500

Made in Bulgaria, the Orpheus is a vacuum-tube phono stage that uses a low-noise D3a pentode tube wired as a triode for both moving-magnet gain and to feed its constant-impedance RIAA section. The equalized signal feeds a Russian triode tube to provide the necessary output gain, loaded by a Hashimoto isolation transformer; the additional gain required by moving-coil cartridges is provided by an amorphous-core Lundahl 1931 transformer with 1:8 and 1:16 selectable primaries. The Orpheus has three switchable inputs—two RCA and one XLR, the latter for use balanced cartridges/tonerms. Though it lacked some top-end extension and low-end impact, the Thrax produced a rich overall sound with a well-controlled bottom and fully fleshed-out midrange, said MF. (Vol.36 No.12)

TRINITY ELECTRONIC DESIGN PHONO: \$34,750

Made in Germany, the fully double-balanced, DC-coupled Trinity offers four equalization curves (RIAA, frrr, Columbia, and EMI), a front-panel Polarity button, and 10 loading options for its two inputs. Though he wasn’t able to use it in balanced mode, MF found that, even in single-ended mode, the Trinity was easily one of the most dynamic-sounding phono preamps he’s heard. Mikey will examine the Trinity’s balanced-mode operation in a Follow-Up. (Vol.36 No.12)

YPSILON MC10 & MC16: \$2800 ★

The MC10 transformer produces 20dB of gain and is intended for use with cartridges having an output range of 0.4–0.6mV. Its custom double-coil transformers are shielded with mu-metal and potted in 10mm-thick enclosures coated with soft iron-nickel. Though it lacked the “shimmering clarity” of the TruLife Audio Reikon, the Ypsilon MC10 produced an “exceptionally expansive and deep” soundstage with solid, dimensional, life-size images, said MF. The MC16 step-up transformer sounds identical to Ypsilon’s MC10 but adds 4dB of gain. Compared to the Music First step-up trannie, the MC16 sounded more open, transparent, extended, and three-dimensional, said MF. (Vol.32 No.8, Vol.35 No.6)

ZESTO AUDIO ANDROS 1.2: \$4700

Made in the US, the Zesto Andros PS1.2 is a dual-mono tubed phono preamplifier with built-in step-up transformer and eight loading options. Its curvaceous, retro-modern exterior doesn’t allow for front-panel controls, but the rear panel is clean, spacious, and logical. Separate moving-magnet and moving-coil inputs permit the simultaneous connection of two tonearms. The Zesto had an addictive, warm overall sound, with plenty of detail, impact, and grace, said MF. “It’s among the more enjoyable and satisfying phono preamplifiers I’ve auditioned at any price,” he concluded. (Vol.36 No.3)

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B**AUDITORIUM 23 STANDARD: \$995 \$\$\$ ★**

Designed and voiced for use with Denon's DL-103, the Auditorium 23 Standard uses two sealed trannies in a non-descript aluminum case, and offers input and output resistances of 7.8 and 505 ohms, respectively. With Denon, Zu, EMT, and Benz cartridges, the sound was "dramatic without being brash, and consistently full-bodied and colorful," said AD. The Auditorium was "slightly coarser" than the Audio Note AN-S8, lacking some sweetness and color, but "a bargain" nevertheless, AD sums up. (Vol.30 No.10 WWW)

BOB'S DEVICES CINEMAG 1131: \$1195 ★

Designed and made by Bob Sattin in North Carolina, the original CineMag step-up transformer is built into a rugged little cast-alloy box, with a toggle switch for gain selection and another for grounding. It uses a pair of CineMag 3440 transformers, switchable between low- and high-gain settings. Build quality was excellent, with all electrical joints made using an American Beauty resistive soldering station. Compared to the built-in step-up in AD's Shindo Masseto preamplifier, the CineMag was more colorful and punchy, with better timbral distinctions between instruments, approaching the performance of the much more expensive Auditorium 23 Hommage T1. "Nothing less than wonderful," Art said. CineMag 1131 phono transformer is switchable between high and moderately low gains (turns ratios of 1:40 and 1:20, respectively), and features gold-plated connectors, and a ground-lift switch. Compared to the internal Lundahl transformers in AD's Shindo preamplifier, the CineMag 1131 offered greater impact, immediacy, and emotional intensity; compared to the Silvercore One-to-Ten transformer, the CineMag sounded "just as dynamic and punchy, but was also a little bit richer and far, far bigger," he said. The 1131 is borderline Class A. (Vol.33 No.6, Vol.35 No.5 WWW)

EAR 834P: \$1895 ECONOMY MODEL; \$2595 DELUXE MODEL ★

Tim de Paravicini-designed, three-tube (12AX7) MM stage that also offers, for MC use, a pair of step-up transformers (3–50 ohms). MF: "The 834's sound was absolutely gorgeous in the midband, with a touch of 'golden glow,' and an overall spaciousness and enticing musical wholeness....The 834P's bottom-end delivery was well-extended though a bit loose, if only slightly so....[Its] high-frequency extension and transient performance perfectly balanced its bottom: not sharp and etched...but not soft or overly romantic....A slightly sharp, fast-sounding cartridge should really get this thing singing." Compared to the GSP Audio Era Gold Mk.V, BJR found that the EAR 834P exhibited more detail, air, delicacy, and body in the midrange, with more detailed and extended highs, but with rounder, slower bass performance. ST is a long-time owner of the 834 and loves it. Add \$700 for chrome Deluxe version. (Vol.20 No.7, Vol.26 No.8, Vol.28 No.1 WWW)

GRAHAM SLEE REFLEX M: \$1240

Like Graham Slee's previous designs, the lightweight Reflex M is housed in a small aluminum case and is powered by an outboard 24V DC power supply. RIAA equalization is applied actively with the negative feedback loop. There are no loading options. Compared to the Graham Slee Era Gold Mk.V, the Reflex M offered superior image solidity, transparency, and top-end extension, said MF. (Vol.35 No.6)

LEBEN RS-30EQ: \$2695

Designed to match Leben's CS300 integrated amp, the robustly built CS-30EQ has a decidedly old-fashioned look, with wood side panels and a gold-toned faceplate. It incorporates a pair of common dual-triode tubes for phono gain, but uses a CR-type equalization circuit rather than the more traditional negative-feedback type. A specially made "orient-core" power transformer is employed to minimize hum and noise. Combined with the CS300, the CS-30EQ delivered a rich, punchy, nuanced sound, said AD, who feels it a high value. "A pleasure to look at, a pleasure to use, and delightful to hear," he concluded. JA was bothered by the CS-30EQ's very high output impedance, however, which restricts the CS-30EQ's compatibility with preamps. (Vol.34 No.11 WWW)

LEJONKLOU SLIPSKI5.1: \$1595 ★

Made in Sweden and housed in a simple black-anodized aluminum box, the moving-magnet-only Slipski5.1 is nearly identical to the less expensive Kinki3, but provides 41dB gain and a fixed loading of 47k ohms/68pF. It produced a smooth, midrange-rich sound with plenty of detail, long decays, and clean attacks, said MF. "It may be the finest-sounding MM-only phono preamp I've heard," he concluded. (Vol.34 No.10)

LFD PHONOSTAGE LE: \$1295 \$\$\$ ★**PHONOSTAGE LE SPECIAL: \$1795 ★**

Minimalist in design and appearance, the LFD Phonostage LE combines 28 resistors, 24 capacitors, 4 regulators, 2 epitaxial diodes, 2 op-amps, and 1 transformer in a pleasant-looking chassis of extruded aluminum. It has a fixed input impedance of 47k ohms and can be configured to provide appropriate gain for moving-magnet (39dB) or moving-coil (53dB) cartridges. Despite its modest design and price, the LFD was "a sonically refined, musically involving, downright fun piece of gear," with a nice sense of touch, good weight and impact, and beautifully rich timbral colors, said AD. Upgraded with multistrand PC-OCC input wiring, multidiameter silver output wiring, taller viscoelastic isolation feet, and a larger power transformer, the Phonostage LE Special (\$1895) offered greater nuance, touch, detail, and scale for a more compelling listening experience, felt Art. "The measured performance of both versions was first-class," said JA. (Vol.34 No.6 WWW)

LIBERTY AUDIO B2B-1: \$1749 ★

Made in the US, the all-FET, class-A B2B-1 comes in a heavy-duty aluminum chassis with a handsome black-anodized faceplate. In addition to its chassis-mounted RCA input and output jacks, the B2B-1 provides single input and output XLR jacks for use as a fully differential mono phono preamp. Jumpers offer five choices of resistive loading and two choices of gain. Though it lacked the Lejonklou Slipski's midrange richness, the B2B-1 produced an extremely quiet, authoritative, ultradynamic sound with deep bass, clean transients, fast attacks, and precise images. "It's a mini Boulder 1008," Mikey praised. The B2B-1 is one of the best-measuring phono preamps in JA's experience. "Nice. Very nice," he said. Sold factory-direct with a two-week return policy. (Vol.34 No.10; Vol.35 No.6 WWW)

MANLEY CHINOOK: \$2250

Made in the US, the Chinook is a one-box, tube-and-FET-cascode, MM/MC phono preamp. A pair of dual-triode 6922 tubes produces the gain, while a second, direct-coupled pair drives the output. Resistive and capacitive loading are selectable via rear-panel DIP switches. Though it lacked the slam and intensity of Manley's much more expensive Steelhead, the Chinook had a subtly warm overall sound, with clean transient attacks, generous sustain and decay, reasonably taut bass, and good soundstaging and imaging, said MF. (Vol.35 No.8)

MUSIC FIRST AUDIO**STEP-UP TRANSFORMER: \$3100**

The impeccably built Music First comes in an attractive aluminum case and uses Stevens & Billington TX103 nickel-core transformers. Three turns-ratio options (1:5, 1:10, and 1:20) and six loading options (10k, 20k, 30k, 40k, 80k ohms, and Open Circuit) are selectable via Swiss-made ELNA silver-contact rotary switches; internal connections are made with 0.6mm single-strand, silver- and Teflon-coated wire. Compared to the Ypsilon MC16, the Music First lacked transparency, top-end extension, and transient snap, said MF. (Vol.35 No.6)

MUSICAL FIDELITY M1VINL: \$1199

Based on circuitry used in Musical Fidelity's more expensive kW phono stage, the versatile M1VINL has front-panel pushbuttons that allow the user to choose between MM and MC inputs, eight capacitance settings, 10 loading options, and RIAA or IEC equalization. Compared to Manley's Chinook, the M1VINL's sound was somewhat dry and slightly dark but inviting overall, with clean, fast attacks; solid, three-dimensional images; well-extended bass; and a rich, warm midrange. MF summed up: "Musical Fidelity's M1VINL is as easy to recommend as it is to listen to." (Vol.35 No.9)

NVO SPA-II: \$7000

Imported from Cyprus by Sounds of Silence, the SPA-II is an all-tube, MC/MM phono preamp with a simple aluminum chassis. It has no step-up transformers, but provides 62dB of gain; MC loading is done with RCA or XLR plugs fitted with resistors. The SPA-II ran very warm but was exceptionally quiet; it produced sweet highs, a warm midrange, and well-controlled, full-bodied bass, said MF. (Vol.36 No.7)

PTE MMMC-R: \$1595 ★

Made in the US, this MM/MC phono preamp is housed in an attractive wooden case and contains a full complement of gain and loading options selected via DIP switches. In moving-coil mode the PTE produced compact, well-focused images, an expansive soundstage, and very good macrodynamics. In moving-magnet mode, however, the PTE sounded "flat, cardboard, and glary," said MF. Changes in production to the MMMC's MM section are said to improve its sound. JA's measurements of a current production sample showed that the MMMC offers superb behavior via both its MC and MM inputs. Current production has increased power-supply voltage and uses active RIAA equalization and low-tolerance film capacitors. While the original version sounded "flat, cardboary, and glary" in MM mode, the revised version offered "tube-like richness and warmth," said MF, hence the promotion to Class B. (Vol.34 No.10, Vol.35 Nos.2 & 6 WWW)

ROBYATT AUDIO MONO: \$675

Simple inside and out, the True Mono SUT step-up transformer is made to Robyatt's specifications by AK Audio of Brooklyn, New York, and comprises just a single transformer and some bits of wire and connectors in a clean copper case. Fit and finish were rough. The True Mono SUT worked well with every mono cartridge AD had on hand and exhibited a "tremendous sense of scale and cavernously deep bass response." Also available as part of Robyatt Audio's Ultimate Mono Record Playing System (\$3000), with the Miyajima laboratory Premium Mono BE phono cartridge and Tektron Italia Mono phono preamp. (Vol.35 No.6 WWW)

ROGUE AUDIO ARES: \$1995 ★

Made in the US, this beautifully built, all-tube design uses pairs of 12AX7 and 12AU7 tubes, has CineMag step-up transformers for low-output moving-coil cartridges, and provides 27 DIP switches for three levels of gain (MM/high-output MC, 0.5–1.0mV; MC, less than 0.5mV) and capacitive loading options. Matched with the Shure V15VxMR MM cartridge, the Ares produced a fully developed, harmonically rich, and three-dimensional aural picture, said MF. Through its MC input, the Ares had a fast, dynamic, slightly dark overall sound, with a slightly thin mid- and high treble. "That Rogue can offer this beauty for only \$1995 makes you wonder what some of the other manufacturers are smoking," marveled Mikey. (Vol.34 No.9)

SIMAUDIO MOON 310LP: \$1900 \$\$\$ ★

The Moon 310LP moving-magnet/moving-coil phono preamp is a fully balanced, discrete design with internal jumpers for selecting gain, resistive and capacitive loading, and equalization curves. Though its break-in time was long, the Moon 310LP offered vivid three-dimensionality, extended dynamics, precise attacks, and lengthy decays. Adding the Moon 320S outboard power supply (\$1399) tightened musical events but hardened the presence region. "Simaudio's 310LP is one of the best analog values I know of," said MF. (Vol.34 No.1)

SOUNDSMITH MCP2: \$999.95 \$\$\$ ★

Similar in appearance to the SoundSmith MMP3, the MCP2 offers 62dB gain and continuously variable loading from 10 to 5k ohms. It had a smooth, well-balanced overall sound with a slightly warm midrange, a moderately deep soundstage, and fair bass extension. Mikey found that the MCP2's overall smoothness made long listening sessions easy, but turning the volume up too far resulted in excessive glare. Compared with the far more expensive Ypsilon VPS-100, the MCP2 exhibited a tendency toward brightness and electronic haze, said MF. (Vol.34 No.10, Vol.35 No.3)

SUTHERLAND INSIGHT: \$1400 \$\$\$

The dual-mono, AC-powered Insight has a case of cold-

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rolled steel with a powder coat of baked-on epoxy and uses Wima polypropylene-film capacitors, Dale/Vishay metal-film resistors, and gold-plated RCA and internal jumper jacks. Gain and loading options are adjustable. Compared with the Musical Fidelity M1ViNYL, the Insight offered greater dynamic thrust and slightly more transparency but lacked midrange warmth, said MF. "The Insight is easy to recommend," he said. This phono pre lacks the drive and impact of the best units I've heard, and is also slightly short on texture, but it's wonderfully quiet and pure-sounding, with a nice sense of flow, sums up AD. He advises owners of early-production units to call the factory to determine if their Insights are in need of an upgrade: an IC replacement that most users will be able to perform themselves without difficulty. (Vol.36 No.8, Vol.37 No.10 WWW)

C

BELLARI MT502 TRANSFORMER: \$499 ★

Housed in Bellari's familiar powder-coated red chassis, the MT502 step-up transformer features hand-wound coils, gold-plated inputs and outputs, two choices (9.12 and 12.4 ohms) of input impedance, and a ground lift. The MT502 produced a quiet background, sharp transients, and taut, fast, well-defined bass, said MF. A perfect match to Bellari's VP130 moving-magnet phono preamp. (Vol.33 No.11)

LEHMANN AUDIO BLACK CUBE STATEMENT: \$449 \$\$\$

The bearer of Lehmannaudio's loftiest product name is in fact their least expensive phono preamplifier: a solid-state device built into a single (not counting the wall wart) and decidedly nonfancy aluminum box. The 1.75" by 4" by 4.25" Statement offers the user a choice of four gain settings (31, 41, 51, or 61dB) and three input-impedance selections (100, 1k, and 47k ohms), the latter supplemented with open slots on its circuit board into which the user can insert the loading resistors of his or her choice. SM was won over by the Statement's dynamic and rather bold, forward sound, especially when compared with his reference, the more reticent NAD PP-3. Above all, SM was impressed by the Statement's high value: "At \$449, it strikes me as a bargain . . . dynamic and robust, with a great sense of space." (Vol.37 No.5 WWW)

MUSICAL FIDELITY V90-LPS: \$229 \$\$\$

Musical Fidelity's new V90 line of small (6.6" by 4" by 1.8"), affordable, Taiwanese-built electronics includes the V90-LPS phono preamplifier, offering two separate pairs of inputs—one for MM (47k ohm impedance), another for MC (100 ohm impedance)—selectable by means of a pushbutton toggle. ST, who insists that, "For jazz, analog is superior to digital," tried the V90-LPS in place of his tried-and-true EAR 834P phono stage. His verdict: "Good enough and then some. It's detailed, sweet, and dynamic, and flexible enough to accommodate almost any MM or MC cartridge." (Vol.37 No.4)

SOUNDSMITH MMP3: \$649.95 ★

The modest MMP3 provides 43dB gain, comes in a nicely machined aluminum case, and is powered by a 24V wall wart. It produced very quiet backgrounds and reasonably good dynamics, but its bass extension and punch were only okay, its imaging was slightly diffuse, and its sound suffered overall from a slight metallic haze. "It's what you can expect for \$400 (price when reviewed)," said MF. "If that's what you can afford, the MMP3 at least gets the job done quietly and cleanly." (Vol.34 No.10)

TEKTRON ITALIA MONO: \$1350

Made in Italy exclusively for Robyatt Audio, the Mono Phono phono preamplifier is housed in a wood-frame box with a solid-copper top that doubles as a ground plane. The Tektron's power supply uses an onboard mains transformer with an EZ80 full-wave rectifier tube for the rail voltage and a silicon rectifier bridge for the heater voltages. Gain is supplied by a pair of 12AX7 dual-triode tubes, which share the signal path with a passive RIAA filter. Fit and finish were excellent. The sound was "workmanlike," with a slightly bright tonal balance, decent musical flow, and a nice sense of presence, said AD. Also available as part of Robyatt Audio's Ultimate Mono Record Playing

System (\$3000), with the Miyajima laboratory Premium Mono BE phono cartridge and Robyatt Audio True Mono SUT step-up transformer. (Vol.35 No.6 WWW)

D

BOZAK MADISSON CLK-PH2: \$19.95 \$\$\$

Small, dark, and distant: That's how SM described the sound of this small, dark, Taiwanese phono preamplifier, available for sale through the mail-order megalodon of your choice. So what do you want for 20 bucks (plus shipping): to live forever? For that kind of money, SM says, the Bozak Madisson CLK-PH2 is "totally recommended." Extra points for performing humbly without an external power supply; bonus point for having the courage to add, at least phonetically, the word click to the name of a phono product. (Vol.37 No.5)

NAD PP4: \$199 \$\$\$ ★

The simple, small (5.3" W by 1.7" H by 1.6" D) PP 3i has circuitry identical to that of NAD's PP 2 phono stage, but adds a line input and a 16-bit, bus-powered A/D converter with USB interface for digitizing LPs via a Mac or PC, and includes user-friendly Vinylite software. Used as a standard phono preamp, the PP 3i was neutral, delicate, and resolving, with a rich midrange, fast transients, and strong senses of coherence, pacing, and rhythmic consistency, said BJR. Digitized files maintained the original LPs' harmonic and dynamic signatures, but sacrificed a bit of air, richness, and warmth. "The PP 3i has no meaningful flaws," said BJR. "A superb value," agreed JA. current version is called the PP4—same circuitry but now has a level control and an automatic power-down feature. (Vol.33 No.4 WWW) x

NO CLASS DISTINCTION

REK-O-KUT RE-EQUALIZER MONO

RECORD-SPECIFIC EQUALIZER: \$369 ★

Built into a small metal box attached to a rack-width panel of black aluminum, the Rek-O-Kut Re-Equalizer is designed to work with the gain and EQ of an existing phono preamp, making it "perhaps the least expensive and simplest of all 78rpm-specific equalizers on the market," said AD. Included in the owner's manual are several pages of thorough EQ recommendations for various labels and two pages of helpful tips on record labels and matrix numbers. Though it added a very slight veiling to the sound, the Re-Equalizer proved effective, useful, and fun. (Vol.32 No.1 WWW)

SENTEC EQ11: \$2500

The Sentec EQ11 is a four-tube phono stage that provides an input impedance of 45k ohms, approximately 30dB of gain, and RIAA phono equalization. What set the EQ11 apart from other such MM-appropriate preamps are five additional, switch-selectable EQ curves for the most common types of vintage record, including those for early Columbia LPs and Decca (and other) 78s. The Sentec's raison d'être, per HR: "If you start buying a lot of collectible old records pressed before 1965, you'll certainly notice that the music on some labels sounds a lot better than the music on others. The purpose of the Sentec EQ11 is to make many of those differences go away." HR said the Sentec EQ11, used with the Miyajima Spirit Mono cartridge, "can show you a lot of what you still haven't heard from your old records. This combo . . . not only makes the records of the past sound good, it makes them sound the way your brain knows they're supposed to sound." Note that the EQ11's gain and input impedance won't suit the majority of MC cartridges, for which an outboard step-up transformer is suggested. While photographing the EQ11, JA hoisted it onto his test bench and found that, despite some minor differences in gain, the shapes of the various EQ curves were consistent from channel to channel—and correlated with HR's observations. The THD+noise percentage was extremely low, and harmonic distortion was "fairly low and almost entirely second harmonic in nature," although intermodulation distortion was higher than expected. His verdict: "Despite its modest appearance and wall-wart power supply, Sentec's EQ11 offers respectable

measured performance to accompany its flexibility of equalization." (Vol.37 Nos. 10 & 12 WWW)

K

SUTHERLAND DUO.

DELETIONS

Abbingdon Music Research PH-77 Reference, Allnic Audio H-3000V, ASR Basis Exclusive 2X, EAR 324, Sutherland Engineering 20/20, all not auditioned in a long time; Bob's Devices Sky 30 CineMag in favor of Model 1130; Lejonklou Kinki3 and Silvercore One-to-Ten transformer no longer available.

SACD, DVD-A, & CD PLAYERS & TRANSPORTS & MEDIA PLAYERS

Editor's Note: SACD and DVD-A player ratings are based on how they sound with their respective hi-rez media, not CD.

A+

BRYSTON BDP-2: \$2995

Essentially a beefed-up BDP-1, the BDP-2 replaces the original's 0.5GHz processor with a 1.6GHz Intel Atom N450 and upgrades its single-amp linear power supply with a larger toroidal transformer specced to provide 10 amps of peak current. In addition, the BDP-2 has two Ethernet connectors (instead of the BDP-1's one), six USB ports (instead of four), a new eSATA connector, and accommodations for an internal SSD data-storage card. Compared to the original, the BDP-2 was just as detailed and dynamic, but offered significantly faster load times and produced highs that were more effortless, said LG. The latest improvements "greatly enrich this digital player's versatility and value," he concluded. (Vol.36 No.10 WWW)

BRYSTON BDP-1: \$2195 ★

Simple in function and purist in design, the plug'n'play BDP-1 digital audio player is basically a Linux computer optimized for streaming audio files. Based on the user-friendly Auraliti L-1000, the BDP-1 plays digital files from external flash drives or portable hard drives plugged into one of its four USB 2.0 ports; it adds an AES/EBU output to the Auraliti's S/PDIF and has a front-panel display and keypad to control playback. Once properly set up and configured and used with Bryston's BDA-1 DAC, the BDP-1 produced open highs, a rich midrange, stunning dynamic range, and three-dimensional imaging, said LG. JA, too, was impressed: "Bryston's BDP-1 proved to be an excellent-performing digital source, with a low-jitter, bit-accurate data output capable of operating at sample rates up to 192kHz." BR-2 remote control adds \$375. (Vol.34 No.6 WWW)

DCS VIVALDI: \$108,496/SYSTEM AS REVIEWED

The latest dCS digital playback system comprises the Vivaldi DAC (\$34,999), which can decode every digital resolution from MP3 to DSD and DXD, provides 10 filter options (six for PCM, four for DSD), and offers every digital input other than Ethernet; the Vivaldi Upsampler (\$19,999), which can upconvert even the lowest-resolution MP3 data to 24/384, DSD, and DXD, or any format in between; the Vivaldi Master Clock (\$13,499), containing two groups of four clock outputs, which can be independently set; and the Vivaldi Transport (\$39,999), a smooth, quiet, quick-booting SACD/CD drive based on TEAC's Esoteric VRDS Neo disc mechanism, controlled by dCS-designed signal-processing electronics, and capable of upsampling CDs to DSD or DXD. In addition to updated casework and cosmetics, the Vivaldi products use a complete revision of dCS's Ring DAC topology, increasing the Ring DAC's available dynamic range and decreasing its jitter. Though setup was complicated, the Vivaldi components produced "a texturally supple, delicate, musically involving sound filled with color and life," said MF. On the test bench, the Vivaldi measured superbly, improving on dCS's Scarlatti

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in almost every way. "Wow!" said JA. (Vol.37 No.1 WWW)

DCS SCARLATTI: \$82,246/SYSTEM
AS REVIEWED ★

This complex, sophisticated four-box system includes the dual-laser SACD/CD Scarlatti Transport (\$32,999), with DSD datastream output via IEEE1394 FireWire interface; the Scarlatti DAC (\$23,999), with dCS-patented Ring DAC topology and switchable reconstruction filters; the Scarlatti Master Clock (\$9999), with eight independently buffered outputs; and the Scarlatti Upsampler (\$12,999), with switchable filters that upsample data to high-sample-rate PCM or DSD. USB input operates in the much preferred asynchronous mode; version shipping August 2012 included 24/192 LPCM and DSD over USB. With both SACDs and CDs, the Scarlatti stack produced sound that was effortless, transparent, tonally neutral, and dimensional, said MF. "The dCS Scarlatti is the best-sounding, most satisfying digital playback system I've heard." JA noted "state-of-the-art" measured performance. (Vol.32 No.8 WWW)

DCS PUCCINI: \$18,999 ★

The Puccini, the least-expensive model in the new dCS line, is a one-box SACD/CD player with both balanced and unbalanced analog outputs; it has pairs of digital inputs and outputs, and can be partnered with the external Puccini U-Clock (\$5499), which offers 24-bit/192kHz support as of the summer of 2011 and adds a USB input. (DSD over USB was scheduled for the summer of 2012.) The Puccini employs dCS's Ring DAC and the bombproof UMK5 Esoteric transport mechanism, while the U-Clock's USB port uses a Texas Instruments TAS 1020B USB receiver chip operating in asynchronous mode. With its convincing low frequencies, outstanding midrange clarity, "righteous sense of musical flow," and state-of-the-art measured performance, the Puccini produced a sound that allowed JA to almost forget he was listening to recordings. The V1.2 firmware upgrade eliminates the low-level, low-frequency idle tone JA discovered with SACD playback, and adds three new low-pass filters for CD playback and external 44.1kHz-sampled data: Classic, which has the same linear-phase characteristic as the Puccini's earlier DSD filter; Long, said to have better anti-imaging performance than Classic; and Asym, free from pre-ringing but with a larger degree of post-ringing on transients. JA heard no substantial difference between the Classic and Long filters, but with the Asym filter engaged there was a greater ease to the overall sound and images were more dimensional. "Highly recommended." (Vol.32 No.12, Vol.33 No.10 WWW)

KRELL CIPHER: \$12,000

Outwardly similar to Krell's earlier Evolution 505, the Cipher weighs 29 lbs and measures 17.3" W by 6" H by 17.3" D. Its aircraft-grade aluminum case is available in silver or black, and has rounded edges and slotted sides for a graceful appearance. Like the 505 and other components in the Evolution series, the Cipher incorporates Krell's proprietary CAST current-drive circuitry. Whereas the 505 had a single stereo D/A converter, the Cipher uses a pair of 24-bit/192kHz DACs, which deliver higher current to the analog stages and expand the dynamic range by 3dB. The Cipher excelled at "revealing the finest subtleties of a musical passage, untangling the knottiest complexities, and showering light on the tonal colors of a voice, an instrument, or an ensemble," said FK. Compared to the Audio Research Reference CD9, the Cipher was just as open, detailed, and emotionally compelling, but sacrificed some harmonic bloom for leading-edge definition, said FK. JA noted superb measured performance. (Vol.35 No.5 WWW; Vol.36 No.10 WWW)

MARANTZ NA-11S1 MEDIA SERVER: \$3499

Launched to celebrate Marantz's 60th anniversary, the NA-11S1 is a remote-controlled, network-connected media player and D/A processor with two user-selectable digital filters and direct access to SiriusXM, Pandora, Spotify (separate subscription required), and Internet radio. A front-panel type-A USB connector can be used both to connect an iPod and to play up to 24-bit/96kHz files from a USB memory stick, while a rear-panel USB2.0B port allows the NA-11S1 to decode high-resolution PCM

and DSD audio streamed from a PC. Though it can play WMA, MP3, ALAC, WAV, and FLAC files, the NA-11S1 is incompatible with AIFF files. The player also has a front-panel headphone jack, coaxial and optical S/PDIF outputs (on XLRs), and balanced and unbalanced analog outputs (on RCAs). The Marantz held its own against the 12-times-more-expensive MSB Diamond DAC IV, with a sound that was smooth, warm, and natural, only slightly sacrificing leading-edge definition, dynamics, and sense of pace, said JA. "This is a first-rate D/A converter that offers sound quality competitive with the best at a relatively affordable price," he summed up. (Vol.36 No.10 WWW)

MERIDIAN DIGITAL MEDIA SYSTEM:

\$7000-\$10,500 DEPENDING ON OPTIONS ★

Originally branded as Sooloos, this hard-drive-based networked music system includes the Source:One system controller with 24-bit/192kHz converters sourced from RME, two-channel analog and digital outputs, and four-port Ethernet switch; the Store/TwoStore hard drive with mirrored storage for the contents of over 2000 CDs (encoded in the lossless FLAC format); and the Control:One, a 17" LCD touchscreen display/interface with CD drive. Additionally, Sooloos's ControlPC software can be used to control the system and manage hard-drive data. Setup and use were simple and intuitive. "Using the Sooloos got me more deeply involved with my music library than at any time since I began collecting many years ago," commended JI. "If you have thousands of albums on a music server, there is simply no better way to manage them," he adds. Linked to the Meridian Reference 861 pre-pro via its S/PDIF output, the Sooloos produced dynamic, involving performances. "When used as a digital source for a quality DAC, the Sooloos was as good as any other CD source I've tried," praised KR. JI notes as of February 2009 that almost a year after he first set up the Sooloos, it still holds its own against iTunes and other server products that have appeared in the last 12 months. As of summer 2009, the Control:One touchscreen interface became the Control 10 and has a handy S/PDIF out, which means you can use the DAC of your choice. All of the Control 10's networking hardware is contained in its slim base; it offers a wealth of connectors, including S/PDIF and Meridian SpeakerLink outputs, DC power in, and an Ethernet port, and allows the importing of hi-rez audio and WAV files. In addition, many of the Sooloos's stock features have been made more intuitive while reducing the number of interim steps for faster management of your music library. The Control 15 (\$7500), the latest version of the Sooloos touchscreen, comes with a 500G internal hard drive, while the Media Drive 600 (\$5000), the current RAID 1 housing component, has room for a mirrored pair of 2TB hard disks. The Control 15 lacks a DAC but is now compatible with virtually all non-DRM file types, and its S/PDIF output supports resolutions up to 24-bit/96kHz. JI: "I still don't think there's a better overall music-server system for the music lover and audiophile who wants to do away with the clutter of CDs and iTunes" and agrees with MF that the Control 15 was fully competitive with the cost-no-object MSB disc transport. (Vol.31 No.9, Vol.32 No.10, Vol.35 No.7 WWW)

MSB PLATINUM DATA CD IV: \$3995

Designed to match MSB's Diamond DAC IV, the Platinum Data CD IV transport is compatible with CDs or WAV files (up to 32-bit/384kHz) on DVD-R, and provides coaxial, TosLink, AES/EBU, and MSB Network outputs. It spins CDs at up to 40 times the real-time rate, then rereads each sector to ensure correct data retrieval; if it finds any differences, the MSB assumes that all reads were incorrect, and adjusts spin speed, tracking, and laser focus as many times as necessary to achieve a "perfect" result. While the MSB outclassed the Oppo BDP-83, offering greater detail, scale, and dynamics, JI was hard-pressed to pick a favorite between the MSB and his Meridian Sooloos server. Signature Transport Power Base adds \$3495. (Vol.35 No.10 WWW)

NAD MASTERS SERIES M50 DIGITAL MUSIC PLAYER: \$2499

Offered by NAD as "computer audio without the computer," the Masters Series M50 looks like a high-end disc player—its front-mounted, slot-loading CD mechanism al-

lows it to function as such—but is, in fact, a 24-bit/192kHz file player. Intended for use with an external file-storage device and an outboard D/A converter—it lacks an internal hard drive, and its varied output jacks are digital only—the M50 supports most PCM files, as well as the cloud services Rdio, Slacker, Tidal, Tuneln, WiMP, Qobuz, and HighResAudio. As for ripping files, unless the M50 doesn't detect a storage device—in which case it simply plays whatever CD is fed into its slot—its control software gives the user a choice of prompts or defaults, automatically indexes the rips, and retrieves from the Internet all metadata and "artwork." In our review, the M50 played music files from both its companion NAD Master Series M52 Music Vault storage device (\$1999) and an Ethernet-connected NAS on JA's home network, and worked well with both NAD's Master Series M51 DAC (\$1999) and the Auralic Vega converter, although JA preferred the more robust-sounding Auralic. Overall, JA rated the M50 "a true high-end source." (Vol.37 No.5 WWW)

PLAYBACK DESIGNS MPS-5 REFERENCE:

\$17,000 ★

Designed by Sony and Studer alum Andreas Koch and made in the US, the MPS-5 is a slim, single-box, fixed-output, two-channel SACD/CD player, upgradeable to multichannel by adding Playback Designs' outboard MPD-5 DAC. Its digital input/output section is carried in the chassis's upper section, while the lower section houses a modified TEAC Esoteric SACD/CD transport and the player's analog output circuitry. The MPS-5 includes Playback Designs' Frequency Arrival System, said to completely eliminate jitter from the audio signal. Once broken in, the MPS-5 produced a "masterfully neutral top-to-bottom tonal balance" with well-extended bass and open, airy highs, said MF. Compared to the dCS Scarlatti, the MPS-5 sounded "somewhat cooler and more analytical," but offered slightly better transparency and three-dimensionality. Although JA found the MPS-5's error correction "astounding," he was puzzled by its relatively high levels of background noise which appeared to reduce the player's intrinsic resolution on SACD closer to that typical of CD. Compared to the Marantz SA-KI-Pearl, the MPS-5 sounded, to MF, "faster, tighter, more resolving, better extended, and more expressive, particularly on the bottom." The MPS-5 traded the delicacy, richness, and atmospherics of the Ayre DX-5 for greater dynamics, blacker backgrounds, and more three-dimensionality, said MF. Compared with the Simaudio Moon Evolution 650D, the MPS-5 had similarly sharp transient attack but lacked clarity, texture, bass control, and focus, felt MF. 2012 production has USB-X to handle DSD datastreams. (Vol.33 Nos. 2, 7, & 12, Vol.34 No.11 WWW)

PS AUDIO PERFECTWAVE CD/DVD TRANSPORT: \$3995

Listening to familiar recordings, recent as well as some from the early days of CD, I heard more musical detail from them than I previously had. This detail was not a matter of exaggerated treble, which can give an impression of increased detail, but was genuinely higher resolution manifested by greater differentiation among the sounds of instruments and rhythmic patterns," said RD about CD playback in his enthusiastic review. (Vol.38 No.2 WWW)



AESTHETIX SATURN ROMULUS: \$7000

The Saturn Romulus is a robustly built, remote-controlled, tubed CD player-DAC. Its digital section uses Gordon Rankin's Streamlength asynchronous USB protocol, a Motorola DSP56362 chip in the filter section, a Burr-Brown PCM 1792A DAC chip, and includes a full complement of digital inputs that decode every resolution up to 24-bit/192kHz. The analog circuit is a zero-feedback design, with both balanced and unbalanced outputs, driven by two 12AX7 and two 6DJ8 or 6922 tubes. Though it lacked the image specificity and soundstage depth of the Benchmark DAC1 USB, the Romulus combined excellent dynamic impact and bass slam with sweet mids and highs, said JI. "The design, engineering, and build quality are top-notch for its price—and for the tube enthusiast,

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it's a no-brainer," he concluded. Though the Romulus measured well overall, JA discovered that its high analog noise floor obscures its effective resolution of digital data with >16-bit word lengths. Switched-resistor volume control adds \$1000. (Vol.36 No.10 WWW)

ASTELL&KERN AK240 PORTABLE PLAYER: \$2500

The luxury choice in high-resolution portable music players," according to ML, the Astell&Kern AK240 contains within its milled-from-solid casework dual Cirrus Logic CS4398 DAC chips, 256GB of internal memory, a microSD slot, separate single-ended and true balanced headphone jacks—and the company's trademark knurled volume knob. With the company's MQS app, the AK240 user can stream, from any Windows or OS computer, PCM files up to 24-bit/192kHz, plus single- and double-rate DSD files. The AK240 can also be enjoyed as a USB DAC, or used as a wired or wireless source component for one's home system. And we haven't even mentioned the vegetable tanning of its Italian-leather case. The AK240 presented ML with performance "at once resolute and finely detailed," though he noted that he's heard richer, ripper sound from other products. "The slight thinness I'd heard through the 'phones became more evident through my main system, making less-than-stellar recordings sound a bit rough around the edges. On the other hand, great-sounding recordings, such as Santana's Abraxas in DSD, were given their due by the AK240." Subsequent to ML's review, JA measured the AK240 and declared, "Astell&Kern's AK240 gets a clean bill of health—and I shared ML's enthusiasm for its sound. While the AK240 is expensive, high-resolution sound on the go doesn't get any better. I'm sending the review sample back to iriver before I'm tempted to buy it!" (Vol.37 No.11 WWW)

AUDIO NOTE CD-4.1X: \$12,000 ★

Audio Note's current flagship CD player is a top-loading, single-box design with an 18-bit Analog Devices AD1865N non-oversampling D/A chip, a robust Philips CD-Pro2LF transport mechanism, and a stereo pair of 6H23N dual-triode output tubes. Though it lacked ambience and air, the Audio Note had a chunky, involving sound, and excelled at presenting "the sonic flesh and blood" of even the most poorly recorded CDs, said AD. JA's measurements uncovered poor intermodulation performance and very high levels of jitter. "The CD-4.1x is a paradox," he said. "Does it sound good because of how it measures or despite it?" (Vol.35 No.7 WWW)

AUDIO RESEARCH CD9: \$13,000

The CD9 is a top-loading, remote-controlled, tubed CD player with optional on-the-fly upsampling, two digital construction filters, and a full set of digital inputs and outputs. Four 6H30 dual-triode tubes drive the analog section; a fifth 6H30 and a 6550C regulate the power supply. The CD9 uses four digital-to-analog converters (two per channel, each in dual-mono mode) and handles resolutions up to 24 bits and sample rates up to 192kHz. Though just as open, detailed, and emotionally compelling as the similarly priced Krell Cipher, the CD9 traded the solid-state player's better-defined transient attacks for body and harmonic bloom, said FK. "The CD9 is a superb machine for spinning CDs and streaming hi-rez downloads, a superb source for today and tomorrow," he concluded. (Vol.36 No.10 WWW)

AURALIC ARIES NETWORK BRIDGE: \$1599

The Auralic Aries network player, which supports the UPnP and OpenHome standards, has inputs for WiFi and Ethernet, plus a recently implemented input for a USB Network-Attached Storage (NAS) device. The Aries user must supply his or her own network router and DAC (digital outputs on the Aries include USB, TosLink, coaxial S/PDIF, and AES/EBU), and must also download the Auralic Lightning DS app—at present available only for the iPad, though Android support is said to be coming. Those requirements fulfilled, the Aries, whose curvaceous body conceals an internal WiFi antenna, can wirelessly stream up to double-DSD, and supports lossless streaming from the services Qobuz and WIMP/Tidal. As ML wrote, "The Aries presented a seemingly lower noise floor than my MacBook Pro. There was a sense of greater resolution,

and an increase in dynamic snap similar to what I'd heard with the [Simaudio] MiND." (Vol.38 No.1 WWW)

AYRE ACOUSTICS CX-7EMP: \$3500 ★

In his measurements, JA concluded that the original CX-7 CD player was "a model of modern CD-playing design.... [It] sounds as clean as it looks. Its balance is vibrant, its bass well-defined and deep, its highs clean, detailed, and well-resolved." He was impressed by the way the original CX-7 preserved the "fragile sense of an acoustic around recorded instruments.... Nothing sounded confused or obscured via the CX-7." While appearing physically unchanged, the CX-7e has undergone several upgrades, including a new FPGA chip. Sounding "superbly rich, smooth, and detailed," with "velvety highs and an enormously deep bass," the CX-7e "fully deserves a Class A rating in Stereophile's 'Recommended Components,'" decreed JA after auditioning an early version of the "E" revision. The improved Ayre offered a more vivid and tactile presentation, distinguishing itself as "an almost aggressively rhythmic player, yet one with a wide open and transparent view of the sound," said AD. "Taut and tuneful, much better than original CX-7," adds WP. RD's new reference for high-end CD players. Further testing showed that the CX-7e exhibited excellent measured performance, though its noise floor wasn't as low as that of the C-5xe. WP preferred the rhythmic drive and huge soundstage of Ayre's C-5xe universal player. Now supplied with MP upgrade—upgrading a CX-7e to MP status costs \$250–\$900, depending on the age of the unit, and includes a reconfigured DAC, upgraded wiring, and new operating-system firmware for faster track access. The CX-7eMP produced a more natural onset and decay of transients with better-defined air around instruments, resulting in a sound that was "more like live music and less like a recording," said RD. Compared to the Luxman D-05, the Ayre was more articulate and focused but lacked the Luxman's full, rich midrange, said JM. (Vol.26 No.5, Vol.27 No.12, Vol.29 No.2, Vol.31 No.1, Vol.32 Nos.2 & 10; Vol.35 No.4, Vol.38 No.2 WWW; see also "The Fifth Element" in Vol.34 No.2 and Vol.35 No.4 WWW)

BAETIS XR2 MEDIA SERVER: \$7995

In a world of high-end media servers that support only two-channel playback, the multichannel Baetis XR2—described by KR as "a complete hardware-and-software package to which the user need add nothing but more storage"—stands out. Essentially a fourth-generation IntelCore i7 computer, the cooling system of which has been optimized for silent operation, the XR2 runs Windows 7 and uses JRiver Media Center playback software. During setup, an icon on the computer's desktop allows a Baetis technician to "see" and control the XR2 while speaking on the phone with the user; thus KR was up and running in no time: "After boot-up, I loaded JRiver's Media Center 19, clicked on a music file, and was able to play via S/PDIF immediately." KR put his multichannel aspirations on temporary hold, compared the S/PDIF output with that of other players and servers, and concluded that the XR2 "produced the best two-channel sound from every DAC I tried" at every level of resolution, including DSD-over-PCM. Turning to multichannel playback via the Baetis's USB and HDMI outputs, KR was equally impressed, observing that his go-to multichannel disc "had never, ever sounded better. Every instrument was right in the room, and well defined from left to right and from front to back. Luscious." (Vol.37 No.9 WWW)

DIGIBIT ARIA MUSIC SERVER:

\$6995 AS REVIEWED

With their beautifully styled Aria, server specialists DigiBit have entered the hardware market with a prepackaged, dedicated music server that can play multichannel files. The Aria runs a heavily customized version of JRiver, and is available with or without an internal DAC, and with or without on-board 4TB or 2TB file storage, the latter as either solid-state or a hard disk; KR skipped the DAC, owing to its two-channel limitations, but opted for the 2TB hard drive. With the Aria's S/PDIF output connected to his exaSound e28 DAC and with Aria's app downloaded to his iPad, KR was up and running in 10 minutes. Oddly, the Aria's manual makes no mention of multichannel,

but, as KR points out, "the Aria handles multichannel files with the same facility as it does two-channel. The only difference is that you need to ask DigiBit to install the appropriate ASIO driver for your device." Even so equipped, the Aria's built-in ripper did not do multichannel; apart from that, as KR wrote, the Aria was "a delight to use and makes no compromise in sound quality. Fundamentally, the Aria's sound was as satisfying as that of other high-quality, computer-based servers." (Vol.38 No.3 WWW)

METRONOME TECHNOLOGIE CD8T SIGNATURE: \$10,975

Made in France, the exquisitely built CD8T Signature CD player measures 17.5" W by 4.5" H by 17" D and, thanks in part to its three toroidal transformers, weighs 33 lbs. It uses a top-loading Philips CDM12 transport mechanism and a single 6922 tube, and has a 24-bit/192kHz-capable asynchronous USB input, an S/PDIF output, and balanced and single-ended stereo outputs. It produced coherent, compelling overall sound with superb low-level resolution, an excellent sense of space, and an absence of anything digital, said ST. "The Metronome Technologie CD8T is more than an exceptional work of engineering: it is an expression and triumph of art," he concluded. Solid-state CD8 costs \$9875. (Vol.36 No.11)

MSB UNIVERSAL MEDIA TRANSPORT V: \$6995

Based on the Oppo BDP-103 Universal Network 3D Blu-ray player—"a great place to start, and a player I'd already had in my video system for a year," said JI—the Universal Media Transport plays CDs, DVDs, BDs, and SACDs, as well as most popular music-file codecs (it has a USB Type A jack for memory sticks). The UMT retains Oppo's onboard video circuitry but uses MSB's own audio processing. Its use requires one of four MSB power-supply options, ranging in price from \$595 to \$5995. While reviewing MSB's Analog DAC (see Digital Processors), JI achieved good results with the UMT: "When I added [it] to the mix, [the system's sense of] 'thereness' notched up a nanotad." (Vol.37 No.4 WWW)

OPPO BDP-105: \$1199

OPPO BDP-103: \$499 \$\$\$

Oppo's latest universal disc players offer a host of versatile and powerful features. The BDP-103 has two HDMI inputs; two HDMI outputs; a DLNA-compatible Ethernet port; three USB ports to handle hi-rez audio, video, and picture files; and an RJ-45 jack to access the Internet for audio and video streaming. It offers bass management, channel-balance and -delay settings, and remote control of input selection and volume. In a larger, heavier chassis, the BDP-105 adds three digital inputs (asynchronous USB-B and S/PDIF on coax and TosLink) and has two eight-channel Sabre32 ES9018 DAC chips—one for its 7.1-channel RCA output, the other for its dedicated two-channel outputs on RCA and XLR jacks. Compared with the '103, the '105 sounded cleaner, smoother, and more detailed, regardless of source or number of channels, said KR. Though the '103 was "no slouch," Kal was more impressed by the more versatile '105. "I know of no other high-quality player with such a comprehensive feature set," he said, deciding that Class B was appropriate for the '103. A free firmware upgrade provides multichannel DSD capability and supports exFAT drives, but doesn't currently offer gapless playback of DSD files. KR was thrilled: "The electricity and communication I experienced were unprecedented." (Vol.36 Nos.5 & 7 WWW)

PARASOUND HALO CD 1: \$4495

Inside Parasound's first Halo-series CD player are a computer optical-disc drive, an R-core transformer, an analog power supply, and an Intel single-board computer running Linux and DSP software from Holm Acoustics of Denmark. Internal partitions of thick aluminum isolate the disc drive from the power supply and computer circuitry. The CD 1 spins CDs at four times the usual speed and plays digital data from solid-state memory; every bit is read at least twice, and the reads must match, before being sent on to a memory buffer. Compared to Musical Fidelity's M1CDT transport, the Halo CD 1 was significantly quieter and produced a larger, more spacious sound, said JM. "Class A," he concluded. ST praised the CD 1's sweet, nonfatiguing smoothness. "This is the way to do computer audio,"

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he said. Compared to the NAD M51 D/A processor, the Parasound added a touch more midbass and lacked a slight amount of recorded ambience, said JA. On the test bench, the Halo CD 1 exhibited excellent measured performance, highlighted by the best error correction JA had ever encountered in a CD player. Incompatible with pre-emphasized CD-Rs, but as those are extraordinarily rare, this is not a real-world limitation. (Vol.36 Nos. 6, 7, & 12; Vol.37 No.1 WWW)

PONOPLAYER: \$399

Provisional rating. See JA's review in this issue.

PRIMARE CD32: \$2850

Primare's CD32 is a single-box CD player featuring balanced and single-ended analog outputs, a choice of three digital outputs (S/PDIF, TosLink, AES/EBU), and a USB Type A digital input, intended for thumb drives, via which the user can play MP3 files (but nothing else). The remote handset allows the user to select among three pre-conversion upsampling modes: the original 16-bit/44.1kHz signal, or the same datastream upsampled to 48 or 96kHz. BD praised the CD32 for allowing instruments to sound like their real selves, with "violins [sounding] articulate and especially captivating." The Primare's spatial performance was also impressive, as was how it conveyed the relationship between the recording space and the instruments within: "The CD32 allowed... guitars to pressurize the space around them in just the way an acoustic guitar—even an amplified one—will in concert." Compared with its predecessor, Primare's CD31, BD wrote that "the CD32 improved on all the areas where the CD31 was strong, and addressed the areas where it wasn't." JA's measurements gave the Primare a clean bill of health, noting in particular the player's "superb error correction." (Vol.37 No.6 WWW)

RESOLUTION AUDIO CANTATA MUSIC CENTER: \$6495

With its large, retro-modern alphanumeric display and top panel of scalloped aluminum waves, the gorgeous Cantata has one of the most distinct appearances in all of digital audio. It combines a digital preamp, CD player, and DAC in a single slim chassis and offers Ethernet, USB, TosLink, AES/EBU, and coax inputs, as well as balanced and unbalanced stereo outputs. A free app allows the user to control all functions via iPad, iPhone, or iPod Touch, and the optional Pont Neuf USB-to-Ethernet Bridge (\$400) permits wireless streaming of resolutions up to 24-bit/96kHz. Compared to the Benchmark DAC1 USB, the Cantata offered equal clarity but sounded noticeably smoother and more natural, said JI. On the test bench, the Cantata lacked low-level linearity but exhibited superb rejection of jitter and error correction, said JA. (Vol.34 No.11 WWW)

SIMAUDIO MOON EVOLUTION 650D: \$9000 ★

The beautifully built 650D is a single-box CD player and DAC with AES/EBU, S/PDIF, TosLink, and USB digital inputs; S/PDIF and AES/EBU digital outputs; and balanced and unbalanced analog outputs. It uses ESS Technology's Sabre32 Ultra DAC chip and employs individual toroidal transformers for the digital and analog power supplies. The Simaudio had a muscular, rhythmically solid sound with clean, fast transient articulation, excellent transparency, outstanding soundstage depth and width, and analog-like imaging, said MF. JA was impressed by the Sim's superb measured performance: "It's hard to see how it could be any better!" It took three years, but an answer finally came, when MF reviewed the Simaudio Moon Evolution 820S power supply (\$8000). Although the 820S can simultaneously power two Moon Evolution components—other candidates include Simaudio's 750D DAC, 740P preamplifier, and 610LP and 810LP phono preamplifiers—MF tried the review sample on the 650D. He found that, "in general, adding the 820S tightened the bottom end and removed smear and edge from the top, while improving high-frequency extension and the sense of air around instruments. Instrumental three-dimensionality improved, and microdynamics were particularly enhanced, probably as a result of the far lower noise floor." MF's conclusion? "My advice to owners of Simaudio's Moon Evolution 650D: Go to your dealer and get an 820S to take home and try. Put it on a credit card if the dealer doesn't trust

you, but be prepared to drop \$8000—I don't think you'll be returning that 820S to the store." (Vol.34 No.11, Vol.37 No.11 WWW)

SIMAUDIO MOON MIND NETWORK PLAYER:

\$990 \$\$\$

Simaudio's Moon intelligent Network Device (MiND) is a network player for use in systems that already have a D/A converter and a Network Attached Storage (NAS) device—neither of which the MiND includes. Its use also requires a WiFi-compatible network router and, to run Simaudio's MiND app, an iPhone or iPad. The MiND itself, which is UPnP- and DLNA-compatible, offers WiFi and Ethernet inputs, and its all-digital outputs (AES/EBU, coaxial S/PDIF, and TosLink) support datastreams up to 24-bit/192kHz. Virtually all music-file codecs are supported, as is streaming from vTuner Radio. With the MiND connected to his home router via Ethernet cable (and to his Auralic Vega DAC via AES/EBU), ML was impressed: "Compared to my stock MacBook Pro running Pure Music 2 or Audirvana, the MiND appeared to offer a lower noise floor. There was a newfound purity to the sound of my NAS-based music that made possible a more musically engaging experience." The drawback: "When I tried the MiND's WiFi connection, I found that I could play without problem files of resolutions up to 24/88.2, but higher resolutions had frequent dropouts." (Vol.38 No.1 WWW)

SONY HAP-Z1ES MEDIA PLAYER: \$1999.99

One might not guess from its 16.75"-wide, 32-lb chassis that the Sony HAP-Z1ES is, essentially, a very high-quality iPod—albeit one that, in KR's words, "improves on Apple's paradigm in every way but portability." Not intended for use as a D/A converter—it has no digital inputs—the HAP-Z1ES combines a 1TB hard drive with a processor that can "remaster" any file to DSD128; a Digital Sound Enhancement Engine (DSEE) claimed to improve the sound of compressed files; wired and wireless Ethernet connectivity for Internet radio streaming from one's computer; and the ability to play almost any two-channel music-file format, lossless or lossy, including DSD. The DSEE feature is automatically disabled for DSD files—smartly presumed uncompressed—while the DSD "remastering" can be disabled, if not conveniently. KR was unimpressed with its remote handset, preferring by far the control app available for Android and iOS, but was very pleased with the Sony's sound: "An integrated, single-box [file] player of the highest sonic quality." JA praised the HAP-Z1ES's "impressive measured performance." (Vol.37 No.5 WWW)

B

LA ROSITA ALPHA: \$2995

Don't abandon your CDs. You can have Perfect Sound Forever, just as Sony said in 1983. What they didn't say then was that you couldn't have it until 2014." Thus spake ST as he endorsed the idea behind the French-made Alpha New streamer, use of which encourages listeners to rip their CDs to iTunes—to take advantage of its leisurely and thorough error correction—rather than play them in real time. The Alpha New contains its own 16-bit/44.1kHz DAC but does not accept S/PDIF data from a CD player; rather, it accepts datastreams via AirPlay or its Ethernet input. Manufacturer La Rosita does not believe that any hi-res file can outperform 16/44.1 digital, and though the Alpha New can play any format or download, in doing so it will truncate rather than downsample the data. Apple MacBook owner ST observed that "inserting the Alpha New into my system was a snap rather than a snafu," and he set to enjoying, via the Alpha New, his favorite Internet radio streams. "I was astonished by the quality of the sound," he said. "I heard drums sound live: impactful, with no smearing of cymbals. La Rosita's Alpha New made Radio Swiss Jazz sound like analog LPs." (Vol.37 No.11)

MUSICAL FIDELITY M1CDT TRANSPORT: \$999

Made to match the M1SDAC, with which it shares a remote control, the M1CDT transport measures just 8.6" W by 3.9" H by 11.7" D, has a slot-loading transport mechanism, and offers S/PDIF, AES/EBU, and TosLink outputs. Partnered with the M1SDAC, the M1CDT had a rich, full-bodied, spacious sound that was easy to listen to and enjoy, said ST. Compared to the more expensive Parasound Halo CD 1,

however, the MICDT sounded looser, less controlled, and less relaxed. (Vol.36 No.10)

C

MUSIC HALL C-DAC15.3: \$549

The Music Hall c-dac 15.3 is considerably more than its model name suggests: It is indeed a digital-to-analog converter, with three inputs—USB, TosLink, coaxial—and 24-bit/192kHz performance, the latter thanks to its tried-and-true Burr-Brown PCM1796 DAC chip. Yet it's also a CD player, thanks to the inclusion of a Sanyo HD850 disc transport that Music Hall claims is mounted "mid-ship": nautical but nice! Like Music Hall's a15.3 integrated amplifier, the Chinese-made c-dac is supplied in black casework with a full-width (16.9") faceplate of brushed aluminum. Used by SM with the a15.3 amp, the c-dac 15.3 "brought [the] music forward and enveloped me in brilliant sound," with extended highs and snappy transients, if less smoothness and body than the NAD C 515BEE CD player. (Vol.37 No.6 WWW)

NAD C 516BEE: \$299

NAD's entry-level CD player replaces their C 515BEE, which had been SM's reference. The new model uses a different transport mechanism, a more powerful digital signal processor, a revised microprocessor, new firmware, a revised power supply for lower power consumption in Standby mode, and an automatic standby feature that puts the player to sleep when not in use. Though the new model retains the old model's size (17" W by 2.75" H by 9.5" D), the front panel has been subtly updated with a thinner disc drawer, larger display, and slightly smaller, rounder buttons. SM found that the new model's disc drawer opened and closed slightly more smoothly, quietly, and slowly. Sonically, the two players were virtually identical, though the new model may have been "slightly more extended on top, slightly more effervescent and polished overall," said SM. "For the money, I don't think you'll find a better CD player," he concluded. (Vol.36 No.10 WWW)

SONY PLAYSTATION 1:

AROUND \$25 USED \$\$\$ ★

A first-generation Sony PlayStation (SCPH-1001) is made of gray plastic, has a set of RCA analog outputs, and comes equipped with a game controller and power cord. When used with Cardas Neutral Reference interconnects, the PS1 offered an "extended, open, and agile" sound, said AD who declared the PS1 an "insanely high value." JM was unimpressed by the player's user interface and noisy disc mechanism, however, and found that switching to cheaper cables resulted in a threadbare midrange and treble. Nevertheless, he admitted, "For \$25, it sounds wonderful." AD agreed, noting that the PS1 combined "slightly diminished" frequency extremes with a "superior level of rhythmic acuity" for a smooth and involving sound. Prices have climbed to as much as \$70 on online commerce sites such as eBay and Audiogon. Some disagreement among the magazine's scribes: Low Class B, according to AD; Class D, according to JM; JA splits the difference, but warns that later-generation PS1s use a less well-specified DAC and lack the RCA output jacks: ignore them, he says. Compared with the Emotiva ERC-2, the Sony lacked treble clarity and bass weight, but offered a fleshier midrange and was more forgiving of poorly recorded material, said SM. (Vol.31 Nos.4 & 7, Vol.35 No.1 WWW)

D

PARASOUND ZCD: \$400 ★

Like all of Parasound's Z products, the basic-black Zcd measures 9.5" W by 2" H by 10" D, and has front-panel rack-mounting holes; a silver-colored option, without mounting holes, is also now available. The neatly organized rear panel offers a wealth of connections, including: Variable and Fixed analog outputs; a video output; a 3.5mm stereo line input; coaxial and optical digital outputs; and a USB input for MP3 playback. Though MP3s played from a flash drive lacked the immediacy, clarity, and impact of their CD counterparts, they often sounded less mechanical. Compared to the NAD C 515BEE, the Zcd sounded faster, tighter, more aggressive, and produced a taller but shallower soundstage with less well-delineated

images, said SM. (Vol.35 No.10 WWW)

TASCAM CD-200: \$599.99

Built around the new audio-specific CD-5020A CD transport from TEAC, TASCAM's parent company, the rack-mountable CD-200 offers both single-ended analog outputs and coaxial and optical digital outputs. Features include a front-mounted 1/4" headphone jack and, for the player's analog outputs, a pitch control with a range of $\pm 12\%$ (its zero point is securely detented). The CD-200 can also play disc-encoded MP3 and WAV files, and its asking price includes a remote handset. JM noted that the CD-200, used as either a transport or a one-box CD player, performed flawlessly, and added that the TASCAM was "the quietest affordable CD player I've ever used." Although its sonic performance was handily bettered by the "read-until-right" Parasound Halo CD 1, JM found "nothing at all to complain about" in the TASCAM—which, he hastens to advise, is "widely discounted." (Vol.37 No.8 WWW)

K

BRYSTON BDP-1USB.

DELETIONS

Apple iPod classic, 160GB and Astell&Kern AK100 Mk.2 no longer available.

DIGITAL PROCESSORS

Editor's Note: The sound of any particular CD transport/digital processor combination will be dependent on the datalink used—see "Bits is Bits?" by Christopher Dunn and Malcolm Omar Hawksford, *Stereophile*, March 1996, Vol. 19 No.3 (WWW). Unless mentioned, processors are limited to 32/44.1/48kHz sample rates. To be included in Class A+, a digital processor must be capable of handling DSD or 24/96 LPCM data.

We strongly recommend those interested in using a computer as a true high-end digital audio source visit our sister website, www.AudioStream.com, which is edited by Michael Lavorgna.

A+

ANTELOPE AUDIO ZODIAC PLATINUM: \$5500

From the makers of the Class A-rated Zodiac Gold comes the Zodiac Platinum, which bundles a D/A processor, headphone amp, and preamp into a small but chunky (6.5" W by 4.4" H by 7.6" D) enclosure. (The similarly chunky Voltikus power supply is slightly less wide.) Like the Gold, the Zodiac Platinum offers PCM performance through 384kHz, but adds DSD64 and 128 via USB (DoP), which it upsamples to DSD256, Antelope Audio claiming direct DSD-to-analog conversion. Technical highlights include FPGA processing for some functions and "Oven-Controlled Clocking," in which jitter is kept low through thermal stabilization of the word clock's crystal oscillator. User controls appear on both the front panel and the remote handset, the former distinguished by a hefty, nice-feeling volume knob—although JI noted that it "produced a bit of a raggedy zipper sound" through his system when he adjusted the volume. With some musical selections JI noted the Platinum's "slightly thicker bottom end" compared with another premium processor, and with other tracks a thicker sound overall, adding that "both [processors] excelled at creating a transparent path to my power amps." As for the Zodiac's headphone amp, "I'd never heard better sound from my Grado HP1s," JI declared. JA wrapped up: "Overall, the very good measurements of Antelope Audio's Zodiac Platinum indicate excellent digital and analog engineering." (Vol.37 Nos.9 & 10 WWW)

AURALIC VEGA: \$3499

The elegant-looking Vega D/A processor is housed in a slim, brushed-aluminum enclosure and has a front panel dominated by a wide, rectangular, yellow-on-black OLED display. The rear panel offers single-ended and balanced outputs, and five digital inputs: transformer-coupled AES/EBU on an XLR, two transformer-coupled coaxial S/PDIFs on RCAs, one optical S/PDIF on TosLink, and a high-speed

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USB2.0 port. The AES/EBU and S/PDIF inputs handle 16- and 24-bit data with sample rates up to 192kHz; the USB port also operates with sample rates of 352.8 and 384kHz, and will accept DSD64 and DSD128 data. A Sanctuary audio processor upsamples PCM input data to approximately 1.5MHz and 32-bit depth, and implements four reconstruction filters for PCM data and two choices of low-pass filter for DSD data. Though it required several hours from cold before sounding its best, the Vega combined outstanding low-end weight and high-frequency extension with an exceptional sense of space, said JA, who also noted measured performance that was beyond reproach. "It's DSD and digital done right!" he exclaimed. (Vol.37 No.2 WWW)

AYRE ACOUSTICS QA-9: \$3950

Housed in the same compact chassis as Ayre's QB-9 USB DAC, the QA-9 is a solid-state A/D converter intended to allow audiophiles to make high-quality rips of their LPs. It uses an Arda Laboratories AT1201 two-channel A/D converter chip and operates at sample rates up to 192kHz, outputting 24-bit data via either a USB 2.0 or AES/EBU connection. Setup was simple and, aside from the tedious task of eliminating LP surface noise, use was straightforward. The Ayre offered smooth highs, a clean midrange, and an excellent sense of space. JA summed up: "When recordings you love have never been issued on a good-sounding CD, it makes sense to rip them with Ayre's QA-9—it's the closest thing to a truly transparent audio component I have encountered." He bought the review sample. Pro version (\$4750) includes DSD and Word Clock outputs on transformer-coupled BNC jacks and outputs DSD via USB. (Vol.35 No.11, Vol.36 No.4 WWW)

AYRE ACOUSTICS QB-9 DSD: \$3250 ★

The QB-9 is an asynchronous transfer mode, USB-input DAC with Ayre's minimum-phase digital reconstruction filter implemented in Field-Programmable Gate Array. It uses a Texas Instruments TAS1020B chip, supporting sample rates up to 96kHz and word lengths up to 24 bits. High-resolution digital files "popped with life" and were marked by a natural flow and physical impact that allowed WP to form a deeper emotional connection with the music. JA: "Ayre's QB-9 is well engineered, offering excellent performance in both the analog and digital domains, and is not compromised by its having just a USB data input." JI felt the QB-9 exceeded the YBA WD202 and Benchmark DAC1 USB in terms of spatial detail, depth, and width, while adding a touch of seductive clarity. "Wow!" The latest version of the QB-9 uses an XMOS XS-1 microprocessor chip and supports sampling rates via USB2.0 up to 192kHz. Earlier QB-9s can be upgraded for \$250. Compared with the Resolution Audio Cantata, the Ayre tended to exaggerate sibilants on some recordings but provided a warmer, fleshier midrange, felt JI. Compared to the NAD M51, the Ayre had slightly greater punch and better dynamic edges. Compared to the much more expensive MSB Diamond DAC IV, the QB-9 had a very slightly more aggressive midrange, but otherwise held its own, said JI. Current production as of mid-2013, auditioned by AD in connection with his AX-5 review in Vol.36 No.7, uses an ESS Sabre DAC chip, offers improvements to the USB chip power supply, and will decode DSD data. Stereophile's "Joint Digital Source" and "Overall Component" of 2009. (Vol.32 No.10, Vol.33 No.6, Vol.34 Nos.7 & 11, Vol.35 Nos.7 & 10 WWW)

BENCHMARK MEDIA SYSTEMS DAC2 HGC: \$1995 \$\$\$

Although similar in appearance to previous Benchmark models, with a front-panel volume control and two ¼" headphone jacks, the new DAC2 HGC uses four 32-bit ESS Sabre DACs, run in balanced configuration, for a significantly lower noise floor; has a new Hybrid Gain Control (HGC) for volume attenuation, which combines active analog gain control and passive low-impedance attenuators in the analog realm with a 32-bit digital DSP gain control for digital signals; and provides front-panel displays for both sample rate and word length. Though it lacks a balanced AES/EBU input, the DAC2 HGC offers two analog inputs and five digital inputs: two optical, two RCA coaxial, and one asynchronous USB that handles resolutions up

to 192kHz as well as DSD64. It had a pleasantly forward sound, with smooth highs, a solid bottom end, and excellent image separation, said EL. Compared to the Auralic Vega, the Benchmark had a similarly smooth top end, but lacked the Vega's sweet midrange and outstanding portrayal of space, said JA. JI noted the DAC2's good scale and sense of ambient space, but found it lacked focus compared to the considerably more expensive MSB Analog DAC. (Vol.37 No.2 WWW)

BRICASTI DESIGN M1 DAC: \$8595

With first-class fit'n'finish and uncluttered exterior design, the dual-mono M1 DAC measures a rack-friendly 17" W by 2" H by 12" D and weighs 12 lbs. It offers four digital inputs (S/PDIF, AES/EBU, BNC, optical), accepts sampling rates up to 192kHz, and, as of 2013, adds a USB input, volume control, remote control, and DSD decoding. The Bricasti's fast, detailed, powerful sound made the much less expensive Musical Fidelity M1DAC seem veiled, muffled, and slow, said JM. "The best digital playback I have heard," he concluded. Compared with the Weiss DAC202, the Bricasti was less forgiving of poorly recorded material, but had bigger, deeper, better-defined low frequencies; compared with the dCS Debussy, the Bricasti sounded very slightly warmer and was very slightly more transparent, said JA, who also praised the M1's state-of-the-art measured behavior. A firmware update (free to registered owners) adds minimum-phase digital filter options, digital phase inversion, and a digital volume control. Compared to its previous filter set, the Bricasti's minimum-phase sound was much richer, with more body, more coherence, and less grain, said JM. Used as a line source in place of Parasound's Halo JC 2 preamp, the Bricasti produced a more coherent sound, with deeper, tighter, more powerful bass. "My personal best just got better," JM concluded. Now ships with asynchronous USB input (not yet auditioned), and will decode DSD data. Production in 2013 replaces the switch-mode power supply of the M1's digital-routing section with a linear supply based on a custom-wound transformer. With the new power supply in place, JM heard improved bass extension and greater overall clarity. Owners of original M1s (made prior to March 2013) can have their units updated for \$200. In 2014, Bricasti offered to M1 owners even more additional refinements: a remote-control kit, involving a separate infrared receiver that plugs into the rear panel (\$500 for M1s presently in service; included in the price of new units); a changeover, performed at the factory, from multiple glass-and-wire fuses to a master circuit breaker (\$150); and an upgrade, also done at the factory, to DXD and DSD64/DSD128 capabilities (\$400). As impressed as he was by the last, JM remained philosophical: "the fact that Bricasti's M1 can now play DSD and DXD files is less important than the fact that its playback of plain old 'Red Book' 16-bit/44.1kHz audio is so compelling that I, for one, don't feel short-changed when a good recording is not 'high-resolution.'" He observed that, yet again, his personal best in digital playback just got better. (Vol.34 No.8; Vol.35 Nos. 2, 3 & 9; Vol.36 No.7; Vol.37 No.12 WWW)

DCS DEBUSSY: \$11,499 ★

The slim, sleek Debussy D/A processor has a digital volume control, offers a full range of digital inputs including a true asynchronous USB port, and uses the latest version of dCS's Ring DAC. The USB input was upgraded in the summer of 2011 to handle 176.4 and 192kHz data and in the summer of 2012 to handle DSD data. Though it lacked the sophistication of dCS's more expensive Scarlatti system, the Debussy had a fast and delicate sound, with powerful bass, dramatically solid, three-dimensional images, sensational rhythmic drive, and outstanding dynamics, said MF: "A very easy and enthusiastic recommendation." JA agreed: "It was a pleasure to test such a superbly engineered product." Compared with the Weiss DAC202, the Debussy offered greater resolution, transient snap, and low-bass weight, but lacked midrange warmth and overall body, said EL. Compared with the Bricasti M1, the Debussy was slightly less transparent, said JA; compared to the Classé CP-800, the Debussy offered more ambience and propulsive drive but lacked some lower-midrange energy. Compared to the MSB Diamond DAC IV, the Debussy

sounded refined and very polite but lacked image precision and spatial depth, said JI. (Vol.34 Nos.1 & 12; Vol.35 Nos.2, 9, & 10 WWW)

EXASOUND E28 MULTICHANNEL DAC: \$3299

See "Music Surround-Sound Components" (Vol.36 No.11 WWW)

GRACE M905: \$3495

From the pro-audio world comes the Grace Designs m905 Monitor Controller: a combination line stage, D/A converter, and headphone amplifier designed as a control center for music playback in a recording studio. As befits its provenance, the m905 is rack-mountable, with most of its controls built into an umbilical-connected, iPad Mini-sized remote that, according to JM, exuded an "Authentic German Engineering" level of quality, even though Grace Designs is based in Colorado. The m905 is built around the Burr-Brown PCM1798 DAC chip, plus an XMOS USB receiver, and it offers, via the DoP standard, DSD streaming: the first product from Grace Designs to do so. Already a fan of the "ever-so-slightly euphonic" Grace m903—which was Stereophile's Headphone Product of the Year for 2012—JM was "taken aback at how much better the m905 sounded," and quantified the depth of his delight at the new model's DSD capabilities with two words: "Woobers!" He said that, all in all, the m905 is "among the most impressive pieces of audio gear" he has ever evaluated. (Vol.37 No.4 WWW)

LUXMAN DA-06: \$4990

Among the earliest and most notable products to emerge from the burgeoning world of DSD streaming, the Luxman DA-06 is a full-size D/A processor built around a Burr-Brown PCM 1792A 32-bit converter chip. The DA-06 supports 2.8224 and 5.6448MHz DSD files and, via its USB input, PCM files up to 32-bit/384kHz. Front-panel controls include the ability to select among three different PCM filters and between two sets of DSD rolloff characteristics, as well as to invert absolute signal polarity on the fly. AD, who acknowledges "DSD's prowess at communicating the subtleties of musical flow," observed that the Luxman sounded "generously explicit, [with] musical and sonic details in abundance and . . . a soundfield notable for its openness and general lack of murk. Still, the DA-06 had good substance, with a tonal character that was slightly—almost imperceptibly—warm and round." In his measurements, JA noted that the Luxman's low levels of harmonic and intermodulation distortion are offset somewhat by marginally poorer-than-expected jitter and noise-floor numbers—yet he declared that, overall, "the DA-06's measured performance is simply superb." AD's conclusion: "a damn fine-sounding D/A converter with virtually all music." (Vol.37 No.7 WWW)

MSB DIAMOND DAC V: \$29,995

The Diamond DAC V (called IV when reviewed) is a solid-state, remote-controlled D/A converter with a volume control, a top-panel iPod dock, and an auxiliary analog input. In addition to its balanced and single-ended outputs, the MSB provides a complete array of digital inputs: coaxial S/PDIF (RCA and BNC), TosLink, AES/EBU, MSB Network, and USB 2.0 digital inputs operating in isochronous asynchronous mode with 24-bit word length and sample rates from 44.1 to 384kHz. Options, as reviewed, include: FemtoSecond Galaxy Clock (now included as standard, \$4995 for retrofit to older Diamond DACs), Diamond Stepped Attenuator (\$2995), USB2.0 384kHz input (\$1395), and Diamond Power Base (\$5995). With its smooth and detailed midrange, pinpoint imaging, and superb spatial performance, the Diamond DAC IV produced "the best digital sound" JI had ever heard in his system. JA was similarly impressed by the MSB's measured performance. Current Diamond V version is exactly the same as the 2014 Select, which was \$75,000. Customers can upgrade from the older Diamond Plus series to the Diamond V series for \$6995. (Vol.35 No.10 WWW)

MSB ANALOG DAC: \$6995

The MSB Analog DAC combines a high-tech chassis machined from a solid billet of aluminum—it stands less than 1" tall yet weighs nearly 30 lbs!—with a circuit architecture that allows the buyer to select among five digital-input options, two power supply options, a WiFi option, and

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more—combinations of which can bring the price to just under \$12,000. (For \$6995, you get one digital input and the stock power supply.) The Analog DAC supports PCM and DSD up to 384kHz, employs a custom-designed, linear-phase apodizing digital filter, and offers single-ended and balanced analog outputs. JI was impressed with the MSB's "thereness," observing that, "With a DAC like the MSB, you get a sense of someone hitting Play on a big reel of wide-track analog tape, after being fed by live mikes in a room." Notwithstanding a couple of performance glitches, both solved by in-the-field firmware updates, JI found it difficult to part with his review sample: "It notched my system up to a place where almost all digital sources had an organic, natural presence without sacrificing the accuracy and detail present in the best recordings." JA noted that high-level signals produced some low-level distortion products, but otherwise found the MSB rare in being "so well thought out and so well engineered." Optional Volume Control: \$995. Optional Analog Power Base: \$2995. UMT Plus: \$5995. Optional Dual Signature Power Base: \$4995. (Vol.37 No.4 WWW)

NAD M51 DIRECT DIGITAL: \$1999 \$\$\$

The M51 is an attractive, full-width D/A converter with a digital volume control and useful front-panel vacuum-fluorescent display that indicates input, volume status, and sampling rate. It offers AES/EBU, coaxial, optical, USB, and two HDMI inputs, as well as analog (one pair each single-ended and balanced) and digital (HDMI) outputs. While all of the NAD's inputs can handle PCM audio data of resolutions up to 24-bit/192kHz, the M51 converts everything it receives to a pulse-width-modulation (PWM) signal at a sampling rate of 844kHz, controlled by a clock running at 108MHz. The NAD had a "wonderfully detailed and revealing sound," said JI. JA noted measured performance that was "almost beyond reproach." Compared to the Auralic Vega, the NAD produced a cleaner, leaner, airier, less forgiving sound, said JA, though he still highly recommends the M51 as a great value for the price. Readers have reported—and JA has now confirmed—that the M51's earlier v.1.39 firmware offers a better, "fatter" sound than the later v.1.41, probably due to a 1dB higher output; later versions of the M51 can be easily "rolled back." to v.1.39. (Vol.35 No.7; Vol.37 Nos.2 & 5 WWW)

PS AUDIO PERFECTWAVE DIRECTSTREAM: \$5999.95

Instead of an off-the-shelf chipset, PS Audio's first DSD processor uses original code written by hand into a field-programmable gate array (FPGA)—the result being a system that converts all incoming data to double-rate DSD. In addition to asynchronous USB, digital inputs include RCA, TosLink, and HDMI, and both single-ended and true balanced analog outputs are provided. The DirectStream is built on a cast-alloy chassis with a glossy MDF top—and a touchscreen from which all user controls can be worked. (A remote handset is included.) Firmware is user-updatable, as AD discovered while reviewing the DirectStream—during which time he noted its "excellent pacing, flow, correctness of pitch relationships, and the like, as well as a consistently smooth and slightly laid-back sound." With some files, AD found the DirectStream just a little too laid-back—a condition mitigated in part by that firmware update—but found its musicality beyond reproach. JA observed that the DirectStream "measures superbly well" in many ways, but was troubled by its poor linearity at low frequencies and its "ultimate lack of resolution" with hi-rez files. But he admits that its sound quality is still very satisfying. In his Follow-Up, RD—whose listening is centered more around discs than downloads—tried the DirectStream DAC with PS Audio's PerfectWave Memory Player transport (\$3995), and observed that, "listening to familiar recordings . . . I heard more musical detail from them than I previously had. This detail was not a matter of exaggerated treble, which can give an impression of increased detail, but was genuinely higher resolution manifested by greater differentiation among the sounds of instruments and rhythmic patterns." Subsequent to that audition, RD received and installed in the DirectStream DAC a new firmware upgrade, bringing his unit to v.1.2.1. His verdict: "The latest firmware represented a

major improvement over the one that I and Art Dudley and Michael Lavorgna had. Soundstages were now deeper and wider, and well outside the speakers' positions with some recordings; and images on those stages were now more 'rounded,' more three-dimensional. The bass was cleaner, with better-defined transients." Following the firmware update to v.1.2.1, JA retested the DirectStream and found evidence of a lower noise floor, increased low-level linearity, and a dramatic reduction in low-frequency distortion. Said JA: "Kudos to PS Audio for designing a product so that its performance can so easily be upgraded by its customers." (Vol.37 No.9, Vol.38 Nos. 2 & 3 WWW)

WEISS DAC202: \$7287 ★

Made in Switzerland, the DAC202 is a digital-to-analog converter with an onboard volume control, a headphone amp, and a FireWire input. It offers AES/EBU, S/PDIF, and TosLink connections; uses an ESS9018 DAC chip; and can accept data resolutions up to 24-bit/192kHz. The Weiss had a smooth, delicate overall sound with a forgiving top octave, but lacked bass extension, jump factor, and involvement, said EL. Nevertheless, he concluded: "I think the Weiss DAC202 can easily offer Class A performance, especially for the audiophile who prizes its graceful, organic musicmaking." Compared with the Bricasti M1, the Weiss had a smoother overall sound but lacked bass definition, said JA. On the test bench, the Weiss proved the best-measuring D/A processor in JA's experience: "It just doesn't get any better than this!" DAC202U (\$8554, not auditioned) offers USB input. (Vol.35 Nos.1 & 2 WWW)

A

ABBINGDON MUSIC RESEARCH DP-777:

\$4995 \$\$\$ ★

Built into a large (17.7" W by 4.7" H by 14.6" D), well-braced, beautifully finished aluminum chassis, the tubed DP-777 is a versatile digital-to-analog processor that incorporates separate chips for handling high-resolution files and "Red Book" CDs. It offers the user choices of: five digital filters (two "Red Book," three hi-rez), six sampling rates, two jitter-reduction settings, sampling rates up to 192kHz, and word lengths up to 32 bits. There are five types of digital input jacks; two types of analog output jacks; and an optional volume control and analog inputs, to allow the DP-777 to be used as a conventional preamplifier. A Russian 6H11P dual-triode is used as an S/PDIF input amplifier on two of the DP-777's digital inputs. AD: "The DP-777's characteristic sound was one of openness, a generous sense of scale, detail without artifice, and a barely perceptible but undeniably consistent timbral warmth." JA was disappointed by the DP-777's measured performance in HD mode. (Vol.35 No.3 WWW)

ANTELOPE ZODIAC GOLD: \$3895

The Gold version of Antelope's Zodiac D/A headphone amp is housed in a gold-toned, shoebox-sized chassis and can accept PCM digital data sampling rates up to 384kHz. It offers multiple digital and analog input and output options, has a front-panel Mono button, two front-panel headphone jacks, and comes with a stylish, all-metal remote control. Compared to the more expensive Bricasti M1, the Zodiac Gold lacked precision, control, and treble extension, but nevertheless offered a full-bodied, musically satisfying, emotionally engaging sound with a warm midrange and a delicate treble, said JM. Voltikus power supply adds \$995 if purchased separately. (Vol.34 No.10 WWW)

ARCAM FMJ D33: \$3199.99

Designed and manufactured in the UK, Arcam's FMJ D33 is a remote-controlled D/A processor with three digital filters. It handles resolutions up to 24-bit/192kHz and offers coaxial and TosLink S/PDIF inputs, an AES/EBU input, two USB ports, and a Type A port for iDevices. Though its treble had a bit too much bite, the D33's overall sound was clean and clear, with excellent low-frequency definition and extension, said JA. Switching to Filter 1, a minimum-phase filter with a fast rolloff, produced high frequencies that were better integrated with the midrange and bass. JA noted impressive measured performance. In April 2013, JA used the D33 as the vehicle for a new digital test and decided that its apodizing filter is among the best-

sounding he's tried. (Vol.36 Nos.2 & 4 WWW)

BEL CANTO E.ONE DAC3.5VB MK.II: \$3495 ★

Like other Bel Canto products, the e.One DAC3.5BV is roughly half the width of a typical audio component and boasts a black-painted steel chassis with a beautifully milled faceplate of naturally finished aluminum. It accepts resolutions up to 24-bit/96kHz and offers a wealth of inputs: RCA and BNC digital, balanced AES/EBU digital, TosLink, ST fiber-optic, and a single pair of analog RCA jacks. While its D/A section is similar to that found in Bel Canto's e.One DAC3, the DAC3.5VB has revised jitter-rejection circuitry for improved performance with high-jitter sources. Meanwhile, the optional VBS1 power supply (\$1495) provides 12V DC and adds heroic LC filtering and energy storage. EL was most impressed by the Bel Canto's ability to produce big soundstages with exceptionally quiet backgrounds. Adding the VB-REF power cable (\$495) opened up those stages even more, reduced treble grain, and lowered the perceived noise floor. On the test bench, the Bel Canto exhibited high resolution and low jitter. The Bel Canto traded the sweet tone of Weiss's DAC202 for greater overall clarity and cleaner highs; compared with the dCS Debussy, the Bel Canto lacked some bass, but offered a warmer, more musical sound, with blacker backgrounds and fleshier images, said EL. Review was of original version; Mk.II has improved power supply and a master clock with lower phase noise. Compared to the Benchmark DAC2 HGC, the Bel Canto had a more laid-back overall sound, with a larger soundstage and better image separation, said EL. (Vol.34 No.6; Vol.35 No.1; Vol.37 No.2 WWW)

BENCHMARK MEDIA SYSTEMS ADC1 USB:

\$1795 \$\$\$

Housed in the same small case as Benchmark's DACs, the ADC1 is a 24-bit USB A/D converter with a Texas Instruments TAS1020B USB chip and a 128x-oversampling, delta-sigma AKM 5394 A/D converter chip. It offers a pair of balanced analog inputs on XLRs, two unbalanced AES/EBU Aux outputs on BNC jacks, a USB Type-B port, a Main TosLink output working in either S/PDIF or ADAT format, a Main balanced AES/EBU output on an XLR, and word-clock input and output on BNCs for use in multichannel systems, slaved to other converters. Though it lacked the Ayre Acoustics QA-9's delicately drawn soundstage, the Benchmark produced a natural, coherent overall sound, with clean high frequencies and weighty, extended lows, said JA, who also noted superb measured performance. (Vol.37 No.2 WWW)

BENCHMARK DAC1 HDR: \$1295 ★

Features two front-panel headphone jacks, RCA single-ended and XLR balanced analog line outputs that are switchable between line level, trim-pot set, calibrated level, and variable level. Compared to the three-times-more-expensive Marantz SA-14, JM found the original DAC1 to be "slightly more articulate in the musical line, and slightly more detailed in spatial nuances, particularly the localization of individual images in space, and in soundstage depth." A terrific value, feels JA, thinking the DAC1 is a great way of getting modern sound from a DVD player or an older CD player. JA discovered superb measured performance in both the DAC1's digital and analog domains, and decided, "Whether considered as a standalone D/A converter or a versatile headphone amp, Benchmark's DAC1 is an audiophile bargain." The USB version adds a USB 1.1 port to take audio data directly from a computer at sample rates up to 96kHz and bit depths up to 24. Additional improvements over the standard DAC1 include: two gain settings for the headphone amp, a defeatable muting of the line outputs, and high-current output drivers for the XLR and RCA outputs. Used as the primary digital source in JA's system, the DAC1 USB offered a "very appealing" sound, with smoother highs and less grain than the original DAC1. Problems arose with the original sample, however, when using the Benchmark to play back 16-bit files from either a PC or a Mac via the USB connection. Subsequent modification of the DAC1 USB's firmware has eliminated dropouts of 16-bit audio data below -70dBFS while preserving the Benchmark's "superbly transparent soundstaging, clean high frequencies, and powerful lows,"

said JA. Compared to the YBA WD202, the Benchmark via USB had a slightly more forward, natural, precise sound, said JI. DAC1 PRE (discontinued in January 2013) adds a pair of unbalanced analog RCA inputs. It offered a sound that was “slightly toward the lean side of neutral,” said ST. In terms of dynamic shadings, tonal color, and control flexibility, the Benchmark’s performance was “remarkably close” to that of the best dedicated line-stage preamps. JA agreed: “As an analog preamplifier, the DAC1 PRE is about as good as it gets, measurement-wise.” The DAC1 HDR offers slightly better build quality than earlier models and adds a motorized Alps volume potentiometer. National Semiconductor LM4562 op-amps are used throughout its analog stage, as well as Teflon RCA connectors. Though it maintained the tonal balance of earlier DAC1s, the HDR proved more musical and engaging, with a bigger soundstage, better solidity and separation of instruments in the stereo image, and better treble resolution, said EL. The Benchmark was tonally similar to the Bel Canto e.One DAC3.5VB, but lacked the more expensive DAC’s high-frequency clarity, bass depth, and soundstage size, felt EL. Compared to the NuForce CDP-8, the DAC1 produced a slightly richer sound with more air and less bite, said WP. Compared with the Peachtree iDac, the Benchmark offered greater clarity and control but was less forgiving of poor recordings, said JI; compared with the Musical Fidelity M1CLiC, the Benchmark offered greater resolution and accuracy; compared to the NAD M51, the Benchmark was just as detailed, but lacked some finesse and body, said JI. Compared to the much more expensive MSB Diamond DAC IV, the DAC1 USB produced a harder, more congested midrange, and had trouble controlling complex imaging, said JI. As of 2015, only the DAC1 HDR is still available. (DAC1, Vol.26 No.7, Vol.27 No.5, Vol.29 No.4, Vol.33 No.11 WWW; DAC1 USB, Vol.31 Nos.1, 7, & 10, Vol.32 No.3, Vol.33 Nos.6, 9, & 11, Vol.35 No.7 WWW; Vol.34 Nos.6 & 10, Vol.35 Nos.3 & 10 WWW)

CAMBRIDGE AUDIO AZUR 851D: \$1649 \$\$\$

Designed in the UK and manufactured in China, the Cambridge Azur 851D DAC-preamplifier is well-finished and somewhat surprisingly solid for its price range. It upsamples everything to 24-bit/384kHz, and most of its inputs can handle 24/192 datastreams. The Azur 851D also has a headphone jack, three switchable filter settings, a choice of balanced and single-ended outputs—and, for the fun of it, Bluetooth wireless connectivity. It also has a sophisticated user interface, addressable by both its menu-driven front-panel controls and its comprehensive remote handset. In JI’s words, “the Cambridge Audio Azur 851D has bang for the buck all over the place. It approached the sound of DACs costing four times as much—closely enough, I feel, to satisfy most audiophiles on a budget.” After the 851D left his test bench, JA observed, “The Cambridge Audio Azur 851D’s measured performance is never short of superb. The fact that it can offer this level of performance for \$1500 puts many more-expensive processors to shame.” In his Follow-Up, AD was put off by the Azur’s “needlessly complex” control panel, but impressed all to hell and back by its musicality: “The Cambridge 851D is, indeed, a killer of giants. It is a D/A converter that uses its high resolution not to add amusical filigree or spatial puffery, but to enhance musical flow and drama. It really is that good.” (Vol.37 No.12, Vol.38 No.2 WWW)

CENTRANCE DACMINI CX: \$799.99 \$\$\$

With a footprint to match Apple’s original Mac mini, the CEntrance DACmini CX is a solid-state D/A processor, line preamplifier, and headphone amp with an external power supply. Its slim front panel holds an input selector, volume control, and 1/4" headphone jack. The DACmini’s AKM 4396 DAC chip accepts signals with word lengths up to 24 bits and sample rates up to 192kHz via its coaxial input, and up to 96kHz via USB. Though it lacked the resolution and bass impact of the much more expensive dCS Debussy, the DACmini offered a big, bold sound that was forgiving of poorly recorded material. Compared to CEntrance’s own DACport, the DACmini offered better low-bass control and greater treble extension, said EL. Mods available for no charge: Black-anodized finish; Headphone Linearity; Rock and Roll; Variable Output. (Vol. 34 No.12

WWW)

CLASSÉ CP-800: \$6000

D/A preamplifier with serial and asynchronous USB inputs. (See “Preamplifiers.”) On the test bench, the Classé’s digital input showed about two bits’ worth less resolution than the current state of the art, but was excellent-sounding. (Vol.35 No.9 WWW)

ELECTROCOMPANET CLASSIC ECD 2: \$3099

The slim (18.3" W by 3" H by 12.4" D), attractive ECD 2 D/A processor has a black-painted steel case and a thick acrylic front panel. It lacks an AES/EBU input, but offers one pair each of balanced and unbalanced analog outputs and five digital inputs: asynchronous USB 2.0, and two each coaxial and optical S/PDIF. A large XMOS chip handles the USB input, and the digital data are fed to a Burr-Brown SRC43921 upsampler chip, which then feeds two Cirrus 4398 multi-bit, delta-sigma DAC chips. Though the ECD 2 lacked some soundstage depth and leading-edge articulation, it had a clean, clear, robust overall sound, with authoritative low-frequency control, said JA, who also praised its nearly state-of-the-art measured performance. (Vol.36 No.12 WWW)

HALIDE DESIGN DAC HD: \$450 \$\$\$

The DAC HD is a solid-state, bus-powered, plug-and-play digital-to-analog converter with tethered input and output cables. The circuitry, all surface-mount, is contained in a small (1.875 cubic inches), black-anodized, machined-aluminum enclosure, and is carried on a small double-sided printed circuit board. The input cable is Wireworld’s Starlight USB (2m is standard; other lengths available); output is via two 6" lengths of silver-conductor cable terminated in Eichmann Silver Bullet RCA plugs. The 24-bit Texas Instruments TAS1020B USB interface chip operates in isochronous asynchronous mode with sample rates up to 96kHz. The DAC HD had an “analog-like ease to its sound,” coupled with excellent reproduction of recorded space, said JA, who also noted “superb digital audio engineering.” Compared to the AudioQuest DragonFly and CEntrance DACport LX, the Halide DAC HD offered slightly smoother highs and produced more spatial depth with stereo recordings, said JA. AD noted that “the affordable and consistently listenable Halide DAC HD . . . has become my USB reference during the past year.” He considers the US-made Halide to be among the greatest bargains, if not the great bargain, in perfectionist audio. (Vol.35 Nos.8 & 10, Vol.37 No.7 WWW)

HALIDE DESIGN USB-S/PDIF BRIDGE: \$395 ★

In this utilitarian-looking USB-S/PDIF converter, a 6' USB cable terminates in a 3"-long black aluminum tube with, on its other end, either a 75 ohm BNC plug or an Eichmann Silver Bullet RCA plug. The Bridge gets its 5V power from the USB bus and feeds the USB datastream to a Texas Instruments TAS1020B receiver chip, enabling the Bridge to operate in asynchronous mode without the host computer having to install a driver program. It operated properly at sample rates of up to 96kHz, and produced a very clean datastream free from timing uncertainty; and with its relaxed, grain-free sound, the Bridge excelled at conveying recorded ambience and low-level detail, said JA. (Vol.33 No.12 WWW)

LECTOR STRUMENTI DIGITUBE S-192: \$3195

The full-width (16.9") Lector Strumenti Digitube S-192, which AD described as well built and well styled “without silly excess,” is a D/A converter whose only user control, apart from its power switch, is a pushbutton that selects among its five digital inputs: RCA, BNC, TosLink, XLR (for AES/EBU), and USB. Its Japanese AK4397 DAC chip provides 32-bit performance at up to 192kHz, and it has an analog (non-switching) power supply and, in its analog output section, a pair of ECC81 dual-triode tubes. Using the Digitube primarily as a USD processor with his iMac and his decidedly tube-friendly music system, AD found that it offered “a near-analog portrayal of . . . colors and textures” and excellent impact and detail resolution, although its sense of scale was bested by the far less expensive Halide DAC HD. Yet in measuring the Digitube, JA noted “truly dreadful measured performance in the digital domain, along with [a] disappointing showing in the analog domain”—in light of which, greater-than-usual buyer

circumspection seems appropriate. “Class A, for special tastes only,” sums up AD. (Vol.37 No.6 WWW)

M2TECH YOUNG DSD: \$1599

Elegant and modern in appearance, the M2Tech Young is a DC-powered D/A processor with a simple aluminum case, a recessed front panel, and a large alphanumeric display. It uses a Burr-Brown PCM1795 DAC chip with a custom oversampling minimum-phase filter. It handles resolutions up to 32 bits via USB (24 bits via S/PDIF or AES/EBU), and sample rates up to 384kHz via USB (192kHz via S/PDIF or AES/EBU). While the Young lacked some accuracy and precision, it nevertheless managed an excellent balance of detail and warmth, said JI. Review was with the Palmer Power Station battery power supply, now replaced by the Van der Graaf low-noise power supply (\$1199). Adding the Palmer resulted in significantly more focus and clarity. “The M2Tech combo seduced me,” JI concluded. Current version will decode DSD128. (Vol.36 No.5 WWW)

MUSICAL FIDELITY M6DAC: \$2999

The M6DAC is a remote-controlled D/A processor with two user-selectable digital filters. (JA admits to hearing no difference between the M6DAC’s digital filters, which don’t measure differently below 60kHz.) It offers a full complement of digital inputs (balanced AES/EBU, TosLink and coaxial S/PDIF, asynchronous USB-B, and Bluetooth operating with aptX decoding) and uses a dual-differential, 8x-oversampling, 24-bit delta-sigma DAC chip with asynchronous upsampling on all inputs to 192kHz. Music played via Bluetooth ultimately sounded flat and uninvolved, but was fine for casual listening. From its USB or AES/EBU connections, however, the M6DAC produced clean highs, a natural midrange, and authoritative bass. “Musical Fidelity’s M6DAC is a superb-sounding, versatile D/A processor,” JA concluded. (Vol.36 No.6 WWW)

MUSICAL FIDELITY V90-DAC: \$299 \$\$\$

Intended as a replacement for their V-DACII—itself one of ST’s longtime reference components—Musical Fidelity’s V90-DAC is housed in the same 6.6" by 4" by 1.8" brushed-aluminum case that characterizes the rest of the V90 line. This 24-bit converter, which uses a 32-bit Burr-Brown PCM1795 DAC chip, delivers up to 192kHz performance through its single coaxial (RCA) input and up to 96kHz through its USB and two optical TosLink inputs. According to ST, compared with its predecessor, “the V90-DAC offers still greater low-level resolution, superior dynamics, and fatigue-free listening.” JA took the V90-DAC for a spin, going so far as comparing it with his current reference, the Auralic Vega. He noted the MF’s combination of smoothness, naturalness, and detail, combined with good spatial properties—but he felt the V90-DAC was lacking, by comparison, in momentum and bass power. JA’s measurements uncovered “a strange rise in the noise floor around the 19 and 20kHz tones, in only the right channel”; otherwise, the V90-DAC “definitely punched above its weight on the test bench.” (Vol.37 Nos. 4 & 8 WWW)

MYTEK STEREO192-DSD-DAC: \$1595

The Stereo192-DSD is a two-channel DAC with S/PDIF, AES, TosLink, FireWire, and two USB (1.1 and 2.0) digital inputs; a preamp version adds analog RCA inputs and outputs and XLR analog outputs. KR stacked three Myteks for multichannel DSD playback. The sound was clean and engaging, with brilliant highs, potent bass, and outstanding reproduction of space; compared to the Oppo BDP-105, the Mytek stack produced a more vivid, immediate, and open sound, with a wider and slightly more forward soundstage, said Kal. “A successful proof of concept,” he concluded. (Vol.36 No.7 WWW)

B

AUDIOQUEST DRAGONFLY V1.2: \$149 \$\$\$

Using Gordon Rankin’s “Streamlength” asynchronous USB technology and made in the US, the DragonFly measures 2.5" long, weighs three-quarters of an ounce, streams up to 24 bits and 96kHz, and plugs directly into the user’s laptop or desktop computer. Included among its 107 internal parts are a Texas Instruments TAS1020 controller chip, a 24-bit ESS Sabre DAC, and a Burr-Brown headphone amp with a 64-step analog volume control.

One-millimeter microdot LEDs enable the dragonfly emblem on the DAC's zinc-alloy case to change color in accordance with the sampling rate of the file being played: green (44.1kHz), blue (48kHz), amber (88.2kHz), and purple (96kHz). The original DragonFly had a well-balanced overall sound, with good tonal color and superb texture, but lacked the spatial depth and timbral sophistication of the Halide DAC HD, said AD. "Class B with two thumbs up," sez SM of the first version, adding that when used to drive Skullcandy's Navigator headphones, the DragonFly created a big, bold sound with rich tone color and tight image focus. Aside from some small, tidy certification markings on its backside, the DragonFly v1.2 is identical in size, shape, and functionality to the original model. Upgrades include a revised power supply and a simplified, more direct signal path between the DAC and headphone module. Where the original excelled in clarity and detail, v1.2 added a richer, more colorful midrange, improved spatial abilities, and a greater sense of ease, said SM. (Vol.35 No.10; Vol.36 No.8; Vol.37 Nos.3 & 4 WWW)

CAMBRIDGE AUDIO DACMAGIC XS: \$199 \$\$\$

As with the well-known AudioQuest DragonFly and other portable models, the UK-designed, Chinese-built Cambridge Audio DacMagic XS gets all the power it needs from the USB bus of the associated computer; unlike those products—but like the Meridian Explorer—the DacMagic XS connects to its host not with an integral USB plug, but via a USB mini-B jack and 6"-long cable (included): an arrangement described by SM as "inelegant" and "awkward." Still, the DacMagic XS, which uses the ESS Sabre ES9023 DAC chip and supports sampling rates of up to 192kHz when connected as a USB 2 device, impressed SM with sound that was, "in a word, glorious." The Cambridge DAC offered "greater top-end clarity and extension than the [AudioQuest DragonFly], but with a richer, more relaxed overall sound than the [Audioengine D3]." (Vol.37 No.4 WWW)

CENTRANCE DACPORT LX: \$199.99 \$\$\$ ★

CENTRANCE DACPORT: \$249.99 ★

USB bus-powered D/A processor with or without (LX) volume control. See "Headphones & Headphone Accessories," where it is rated Class B. Used as a single-input preamp between a laptop source and a pair of Rogue M180 monoblocks in EL's main system, the DACport produced a large soundstage, a slightly rolled-off but grain-free treble, and a tube-like midrange. Compared to the Benchmark DAC1 HDR, the DACport lacked resolution and bass weight, but always sounded musical and tonally balanced. LX version sounds clearer, more transparent, and is rated Class B as a D/A processor. A less expensive version of CEntrance's DACport, the LX dispenses with that model's volume control and can be used as a regular USB D/A processor. Like the original, the LX operates in adaptive isochronous USB mode rather than the theoretically better asynchronous mode, but nevertheless performed well on the test bench, showing no jitter-related sidebands. Compared to the original DACport, the LX offered a similarly smooth and grain-free treble, but was slightly clearer and more transparent. However, the LX couldn't match the smoothness or superb sense of space provided by the significantly more expensive Halide DAC HD. "CEntrance's DACport LX offers superb sound quality at an affordable price," concluded JA. (Vol.33 Nos.6 & 10, Vol.35 No.10 WWW)

CHANNEL ISLANDS AUDIO TRANSIENT MK.II: \$699

Housed in a small (4.45" W by 2.9" H by 5.25" D), nicely finished aluminum case, the Transient Mk.II is an asynchronous USB DAC with a 24-bit volume control and three digital outputs: S/PDIF via 75-ohm BNC, I2S via mini-DIN, and differential I2S via an HDMI jack. Six front-panel LEDs indicate the incoming signal's sampling rate: 44.1, 48, 88.2, 96, 176.4, or 192kHz. In a case identical to the Transient's, the optional VDC•5 Mk.II high-current power supply (\$329) feeds the Transient a linear 5V DC at 2.5A for reduced noise and ripple. Though it lacked some high-frequency focus and ease, the Transient Mk.II produced a well-balanced overall sound, with good soundstage size, respectable bottom-end heft, and a clean midrange, said

JL. Measured performance was somewhat disappointing, however; JA found that, even with 24-bit data, the Transient offered resolution of just over 17 bits. (Vol.37 No.3 WWW)

IFI AUDIO IDAC: \$299

iFi Audio is a subsidiary of Abingdon Music Research. The iDAC, iFi's first product, is a sleek, single-box D/A converter built into a 6"-long aluminum extrusion with an attractive textured finish. It uses an ESS Sabre DAC chip capable of handling resolutions up to 24-bit/192kHz, and has a single USB-B input, a pair of RCA jacks for line output, and a 3.5mm headphone jack with volume control. It can be powered by the user's computer or by iFi's iUSBPower 5V power supply (\$199). Compared with the AudioQuest DragonFly, the stock iDAC had a better overall sense of touch on strings and percussion, and revealed greater richness and complexity in hi-rez music files, said AD. With the iUSBPower powering the iDAC, Art noted a subtly clearer sense of force in note attacks and better spatial presence around voices. "Highly recommended," he concluded. (Vol.36 No.5 WWW)

MERIDIAN EXPLORER: \$299 \$\$\$

Made in England, the Explorer is a 4"-long USB D/A headphone amplifier built into a lightweight aluminum-alloy tube with a hard-anodized finish. A plastic cap at one end incorporates a USB mini-B jack, while a similar cap at the other end holds two 3.5mm jacks: one for headphones, the other for line-level audio output. The Explorer operates in asynchronous mode and has a 24-bit/192kHz Texas Instruments PCM5102 converter chip; three small LEDs on the Explorer's upper surface indicate the sample rate of the incoming music file. Its 130mW headphone output incorporates a 64-step analog volume control, while the line-output jack is fixed in level. Though it lacked the Halide DAC HD's timbral richness, the Explorer had an airier overall sound, with detailed highs, a good sense of scale, and generous lows, said AD. JA noted "generally superb" measured performance. About to be replaced by MQA-capable Mk.2. (Vol.36 No.9, Vol.37 No.10 WWW)

MUSICAL FIDELITY M1DAC: \$799 \$\$\$ ★

The M1DAC digital-to-analog converter uses two dual-differential Burr-Brown D/A chips, has a choke-regulated power supply, and offers coax, TosLink optical, AES balanced, and USB inputs, as well as standard RCA and balanced XLR outputs. While its USB input is limited to 16-bit/48kHz data, the M1 can handle any S/PDIF signal at sample rates up to 192kHz. With its astonishingly low noise floor, the M1 produced outstanding low-level resolution, crisply articulated transients, rhythmic certainty, and tonal purity. "A stunning bargain," ST decided, adding that this DAC "goes for a song but has a very, very low noise floor. The sound quality is highly resolving and, at the same time, non-fatiguing." Compared to the Rega DAC, the M1DAC lacked tonal richness but sounded lighter and quicker, with an airier top end and more space between the notes, said ST. The M1DAC demonstrated superb rejection of jitter on all its inputs and offered overall measured performance that was close to the state of the art, found JA. Borderline Class A but "You will need a very, very good system to realize how great this DAC is!" warns ST. Latest version has a revised power supply and uses the popular Texas Instruments TAS1020B USB receiver, operating in the optimal asynchronous mode, to handle resolutions up to 24-bit/96kHz. While the measured performance of the original M1DAC was marred by low-level power-supply spurs, the latest sample produced a much lower noise floor, found JA. (Vol.34 Nos.3, 5 & 6, Vol.36 No.1 WWW)

REGA DAC-R: \$1195 \$\$\$ ★

Rega's DAC measures just 8.4" W by 3.1" H by 10.5" D and sports an attractive aluminum-and-steel case with a reflective front panel. It offers two coaxial, two optical, and one USB input, as well as 10 digital filters: five for data rates of 48kHz and under, five for rates up to 192kHz. While it operates in the adaptive USB mode and its Burr-Brown PCM2707 USB receiver chip is limited to resolutions/sample rates of 16-bit/48kHz, the Rega DAC "had a richness, a fullness of tone, an analog sense of ease, that I had not hitherto heard from digital, save for SACD," said

ST. Compared to the Musical Fidelity M1DAC, however, the Rega DAC lacked some air and openness in the top end. JL was puzzled by its warm balance but ST is adamant that the Rega DAC is a reference product: "Probably the most analog-like sound Sam has heard from a DAC. The filter settings allow the user to change the sound—significantly, says Sam, slightly according to Rega. Sony was right: CD forever!" Compared with the Peachtree iDac, the Rega had a warmer, fuller sound, but lacked clarity and accuracy, said JL. JA's measurements confirmed that the Rega DAC operates in isochronous adaptive mode. The Rega's respectable measured performance was marred by supply-related jitter sidebands that may have contributed to the DAC's weighty low frequencies. (Vol.34 Nos.5 & 10, Vol.35 No.2 WWW)

SCHIIT BIFROST: \$349

Made in the US, the Bifrost is a solid-state D/A processor with three digital inputs (coaxial, TosLink, asynchronous USB) and a pair of RCA output jacks, housed in an attractive brushed-aluminum chassis. It uses a 32-bit delta-sigma AKM4399 chip coupled with a fully discrete JFET analog section and handles signals of any resolution up to 24-bit/192kHz at all of its inputs. Compared with the AudioQuest DragonFly, the Bifrost produced a larger, more open soundstage, with more depth and improved layering of instruments; compared with the Benchmark DAC1, the Schiit traded resolution and accuracy for natural musicality, said JL. "The Schiit Bifrost is a carefully designed and beautifully built DAC," he decided, recommending high Class B. Uber Analog stage adds \$70, Gen 2 USB input adds \$100. (Vol.36 No.8 WWW)

WADIA 121DECODING COMPUTER: \$1299

The 121decoding computer is a solid-state, remote-controlled D/A processor and headphone amplifier housed in a compact (8" W by 2.7" H by 8" D) case of black powder-coated aluminum. It has balanced and unbalanced outputs, BNC and RCA coax digital inputs, TosLink and asynchronous USB input jacks, a three-pin AES/EBU socket, a seven-pin connector for the external power supply, and a front-panel headphone jack. All digital inputs can accept data rates up to 24-bit/192kHz. Compared with the Benchmark USB DAC, the Wadia lacked bass definition and overall clarity; compared with the M2Tech Young, the Wadia sounded pleasant and polite, but lacked resolution, said JL. On the test bench, the Wadia's AES/EBU input behaved correctly, but its S/PDIF and USB connections failed to output 24-bit resolution. (Vol.36 No.7 WWW)

WAVELENGTH PROTON: \$599 \$\$\$ ★

Designed by Gordon Rankin, the Proton is a solid-state DAC built into a small (4" W by 2.5" H by 5.75" D), attractive aluminum extrusion. It has a single USB type B input, operates in isochronous asynchronous mode, handles resolutions up to 24-bit/96kHz, and uses a Wolfson XWM8721 DAC chip that also incorporates an analog volume control and headphone amplifier. Though it was a bit less dynamic and dramatic than Wavelength's more expensive Cosecant, the Proton had a naturally colorful and textured sound, said AD, who bought the review sample. "An easy recommendation," he said. The Proton's limited dynamic range is due to the use of a battery supply with limited voltage capacity, JA noted. Compared to the AudioQuest DragonFly, the Proton sounded slightly less brilliant, lacking some treble extension, openness, and presence, said AD. (Vol.34 No.10 WWW; Vol.35 No.10 WWW)

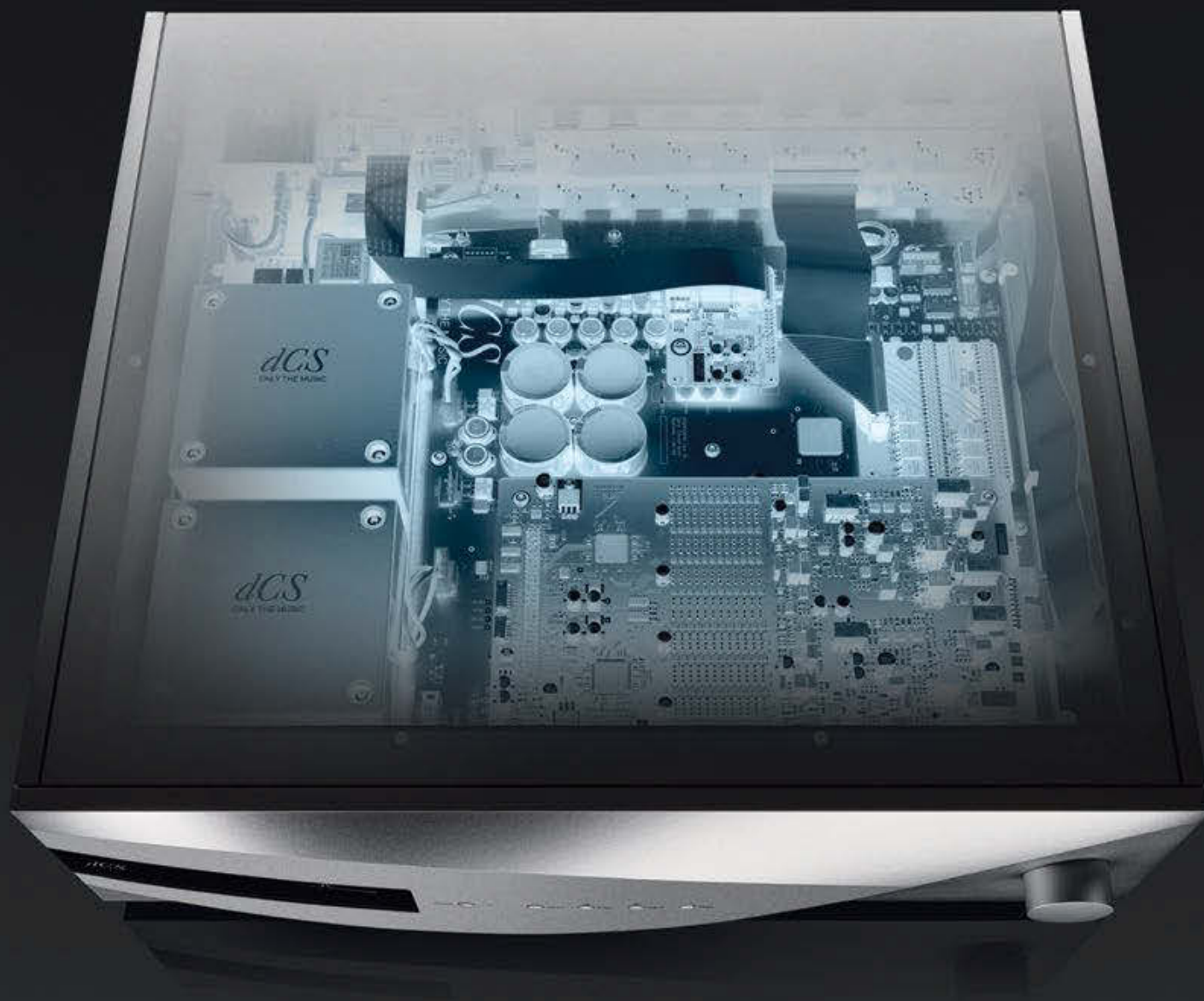


ARCAM RBLINK: \$249

The rBlink is a very small (2.9" W by 1" H by 3.9" D) Bluetooth audio receiver and digital-to-analog converter with RCA analog and S/PDIF coaxial outputs. It uses Arcam's implementation of CSR's audio-optimized aptX Bluetooth codec and a Burr-Brown PCM5102 DAC chip. Installation was simple and the Bluetooth sound was always easy to enjoy, said Sam. "Highly recommended," he concluded. JA's measurements of the rBlink suggest that its sound quality will very much depend on the codec used to stream audio data to it; the AAC codec appeared to preserve resolution at the expense of noise-floor modulation and enharmonic spurs, while the aptX codec sacrificed

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absolute resolution in favor of preserving a random noise floor. Though data streamed via Bluetooth sounded somewhat brash and compressed vs that same data sent via a TosLink connection, the rBlink was surprisingly enjoyable, said JA. "Plug the Arcam's S/PDIF output into your high-end D/A processor and you have a convenient and legitimate source of music," he concluded. (Vol.36 No.12, Vol.37 No.3 WWW)

AUDIOENGINE D3: \$149 \$\$\$

The Chinese-built Audioengine D3, like the physically similar—and similarly portable—AudioQuest DragonFly, is a combination D/A converter and headphone amplifier with a USB standard A plug at one end and a three-conductor, 3.5mm mini-jack at the other. Its shiny aluminum case conceals an Asahi Kasei Microdevices AK4396 converter chip, a Texas Instruments LM49726 op-amp, and TI's popular TAS1020B USB receiver, with firmware for asynchronous streaming. Headphone users will delight in knowing that the Audioengine's price includes a 3.5mm-to-1/4" jack adapter; those who wish to drive their audio systems with the D3's 2V RMS output must supply their own miniplug-to-RCA-plug cables. SM considered the D3, fresh out of the box, "too sharp on top"—even when he factored in the inherent top-end emphasis of the Skullcandy Aviator phones he was using. But the brightness moderated over time, "though not at the expense of [the D3's] intoxicating speed and vibrant high-frequency color." (Vol.37 No.4 WWW)

SONOS CONNECT: \$349 ★

SONOS CONNECT:AMP: \$499 ★

More sophisticated than the Squeezebox," said JA. The user-friendly Sonos system sets up its own proprietary, encrypted audio network and can even dispense with the partnering computer if necessary, working with a network-attached storage hard drive that can operate as a stand-alone source of media files. Installation "couldn't have been easier," said JA. While he found the ZP80's analog outputs to be adequate for use in noncritical applications, JA felt the Sonos performed best with its digital output feeding an external DAC. Rating refers to the performance of the ZP80's analog outputs. Testing of the new ZP90 and ZP120 versions continues the recommendation. The ZP90 is now called the Sonos Connect. Review was of the very similar ZP80 and ZP100, respectively. While the ZP120 (now called the Connect:AMP) resembles Sonos's original ZP100 in using a class-D output stage, it offers slightly more power (55 vs 50Wpc), replaces the linear power supply with a switching supply, and provides more robust wireless networking capabilities. Though limited to sample rates of 44.1 and 48kHz, the ZP120 exhibited a well-managed gain architecture and performed admirably on the demanding high-frequency modulation test, found JA. Remote control app for the iPhone and iPod Touch dramatically improves user interface. (Vol.29 No.10, Vol.33 No.4 WWW)

D

APPLE AIRPORT EXPRESS: \$99 \$\$\$ ★

While the Airport Express works only with iTunes v4.6 or later (running on both PCs and Macs), is limited to 16-bit data, and functions only at a 44.1kHz sample rate, the combination of iTunes and the Airport Express offered an easy way to pipe CD-quality music around the entire home. "The beauty of this unassuming component," said JA, "is its S/PDIF data output, which allows the Airport Express to assume a respectable role in a true high-end audio system." However, its lack of an internal clock can lead to the first couple of seconds of songs being missed with DACs that are slow to lift their mutes. (Vol.28 No.5 WWW)

ASUS XONAR ESSENCE ST: \$199.99 ★

ASUS XONAR ESSENCE STX: \$189.99 ★

Soundcards compatible with PCI (ST) and PCI Express (STX) personal computers running the Windows XP, Vista, and 7 operating systems (Macs not supported). The Xonar Essence boasts a specified signal/noise ratio of 124dB, and its analog output circuitry is shielded by a grounded metal cover, preventing RF interference from contaminating the audio signal. In addition, the Essence draws its power from a 4-pin socket separately connected

to the PC's power supply, thus isolating the analog circuitry from the PC's motherboard. The soundcard offers a headphone output, a line/microphone input, and standard and optical S/PDIF digital outputs, but there is no digital input. D/A conversion is handled by a high-quality 24-bit Burr-Brown PCM 1792. Though the Essence could not support 88.2 or 176.4kHz files through its analog inputs, JA was impressed by the card's weighty lows, clear midrange, and airy highs: "I can unreservedly recommend the Xonar Essence as the least expensive means of extracting true high-end sound from a PC." A driver update guarantees bit-perfect playback from the digital output at all sample rates up to 192kHz, and, unlike with the earlier driver, ASIO-compatible applications take exclusive control of the audio device. (Vol.33 Nos.1 & 9 WWW)

K

LYNX AES16E SOUND CARD.

DELETIONS

Grace m903 no longer available.

MUSIC SURROUND-SOUND COMPONENTS (OTHER THAN SPEAKERS AND DISC PLAYERS)

A

BYSTON SP-3: \$9500

The SP-3 combines a true analog preamp and a full-featured multichannel digital audio processor in a beautifully built, relatively compact (17" W by 5.75" H by 14.25" D) case. It uses Byston's high-quality 24-bit/192kHz DACs and offers a full suite of connections, including: eight HDMI inputs, two HDMI outputs, a 7.1 set of analog inputs and two 7.1 sets of outputs, four S/PDIF inputs, two AES/EBU inputs, and USB, RS-232, and Ethernet jacks. The sound from the SP-3's analog stereo inputs was "absolutely pristine, powerful, and a breath of fresh air," while digital S/PDIF or TosLink datastreams sounded transparent and convincing, with especially detailed and extended treble. "I think the Byston SP-3 is the first great audiophile preamplifier-processor," KR concluded, "It almost redefines Class A sound for a surround processor." (Vol.35 Nos.5 & 7 WWW)

BYSTON 9B-SST²: \$8095 ★

The 9B-SST² power amplifier (called 9B-THX at the time of the review) boasts five channels, 120Wpc into 8 ohms, and is built like pro gear; ie, like a tank. Hand-soldered, double-sided glass-epoxy boards and elaborate grounding scheme front special-grade steel toroidal transformers. According to JA, "the excellent set of measurements indicates solid, reliable engineering." LG was impressed by this amp's speed, power, extension, its tightness and definition in the bass, and its "excellent" midrange. Fully the equal of more costly amps, with wide dynamic contrasts and "involving" vocals, and sonically similar to previous Byston ST amps. THX conformance, a 20-year (!) warranty, and a reasonable price make this beefy, reliable amp an attractive package—a perfect choice, suggests LG, for home-theater and multichannel music systems. KR's long-term multi-channel reference. (Vol.23 No.9 WWW)

CLASSÉ CT-SSP: \$9500 ★

With its clean front panel boasting only a small touchscreen and a single knob, the solidly built CT-SSP surround-sound processor has an all-business look and is extremely simple to use while retaining complete control. It offers 10 output channels and multiple subwoofer configurations, and can support up to 20 audio/video source assignments and six different speaker configurations. Inserting the CT-SSP into KR's Connecticut system resulted in a deeper, wider soundstage, more impressive imaging, and seamless integration of the subwoofer and speaker outputs. "The performance of my system was elevated to a level beyond anything previous," said Kal. The CT-SSP sounded clean, tight, and powerful in KR's Manhattan system, with greater low-end weight and impact than the

Meridian HD621/861 but a less expansive soundstage. (Vol.33 Nos.7 & 11 WWW)

EXASOUND E28 MULTICHANNEL DAC: \$3299

Like exaSound's e18, the e28 uses a Sabre32 D/A chip capable of handling almost any PCM format with resolutions up to 32-bit/384kHz; but, while the earlier model could play DSD files only in stereo and at the base sampling rate of 2.82MHz, the e28 handles DSD sampling rates of 2.82, 3.072, 5.64, 6.14, 11.28, and 12.28MHz without converting the signal to PCM. In addition, the e28 includes an enhanced headphone output, and is specified as having lower distortion and noise than its predecessor in every measured mode. The sound was smooth and balanced overall, with sweet highs, a decidedly pure midrange, and an exceptional sense of space, said Kal. "The exaSound e28 is a real-world, second-generation, cutting-edge, multichannel DAC. I wouldn't hold my breath waiting for something better to come along any time soon," he concluded. (Vol.36 No.11 WWW)

ILLUSONIC IMMERSIVE AUDIO PROCESSOR:

16,000 CHF

Made in Switzerland, the unusually versatile—if very expensive—Immersive Audio Processor includes a five-band parametric equalizer in each of its 16 output channels. It processes two- and multichannel sources into one of 168 loudspeaker setups with the ability to manipulate the presentation's spatial distribution using three parameters: Center, Depth/3D, and Immersion. A superb control app provides an attractive graphic interface for accessing all of the IAP's functions, and works in real time so the user can immediately hear the effects of any adjustments. Though it lacks high-resolution decoding and doesn't accommodate multiple remote zones, the IAP has four HDMI inputs and one HDMI output, three coax and two optical digital inputs, three analog stereo RCA inputs, an XLR analog stereo output, and 16 additional XLR output connectors. Setup was relatively simple, operation was flawless, and the sound was remarkably clean, transparent, and balanced, said Kal. (Vol.37 No.1 WWW)

INTEGRA DHC-80.3 PREAMP/PROCESSOR:

\$3200 \$\$\$ ★

Though similar in appearance to Integra's DTC-9.8 and its successors, the DHC-80.2 preamplifier-processor adds a host of features, including: HDMI v1.4 (eight inputs, two outputs, Audio Return Channel and 3D), two USB inputs, two subwoofer outputs, a Universal Port for an iPod dock or HDRadio tuner module, network connectivity, and the latest versions of Audyssey MultEQ XT32, Dynamic EQ, and Dynamic Volume. Compared to the DTC-9.8, the DHC-80.2 had a more dynamic, better-balanced sound, with a fuller midrange and improved transparency. "The Integra DHC-80.2 redefines value in a multichannel preamplifier-processor for the serious music lover or home-theater fan," said KR. Early production samples suffered from an incorrect implementation of Audyssey's MultEQ Pro room correction software, resulting in a glassy midrange and dull treble; a later firmware update corrected the problem and produced smooth high frequencies and a balanced overall response. Current 80.3 version added new video circuitry and additional features. (Vol.34 Nos.7 & 9 WWW)

KRELL FOUNDATION

PREAMPLIFIER/PROCESSOR: \$6500

Despite some wrinkles with the EQ system, this is an excellent-sounding and proficient pre/pro for audiophile ears. DSD capability is now being added. (Vol.37 No.5 WWW)

MARANTZ AV8801: \$2999 \$\$\$

The Audyssey-equipped AV8801 is an 11.2-channel preamplifier-processor with a hefty toroidal transformer and a heavy copper-plated chassis. Behind its front-panel dropdown door are a brilliant display and a plethora of controls and jacks, including ports for headphones, the Audyssey calibration microphone, iPod/USB and HDMI/MHL, as well as three jacks for analog audio and video. Around back, the AV8801 has a moving-magnet phono input and 13 XLR and RCA analog outputs. All 13 channels feature 32-bit/192kHz DACs driving proprietary Hyper Dynamic Amplifier Module circuits. Setup was simple. The Marantz offered a coherent, powerful sound with a

smooth treble and clean midrange, said KR. "Overall, the Marantz AV8801 is the best-sounding preamplifier-processor I have heard at or below its price," he concluded. (Vol.36 No.3 WWW)

MCINTOSH MC303: \$11,000 ★

The three-channel, 300Wpc MC303 amplifier measures 17.75" wide by 12.4" high by 22" deep and weighs 155 lbs. Its large front panel is home to three blue power-level meters, two gold-rimmed knobs for meter illumination and power, and two substantial handles. Driving KR's B&W 802D loudspeakers, the MC303 delivered "the relaxed spaciousness and transparency of master tapes." There was a smoothness that extended through the frequency spectrum and seemed to erase the 802Ds' crossover transitions. The Mac couldn't quite match the firm bass or natural treble of the Bel Canto Ref1000 Mk.II monoblocks, however. (Vol.32 No.5 WWW)

MERIDIAN REFERENCE 861: \$18,995 ★

Multimedia controller with video, DSP-based decoding for matrixed and discrete multichannel audio sources. Functions as analog preamplifier-controller, digital and video controller, and A/D-D/A converter. Built-in, reprogrammable decoding of multichannel sources (Dolby Pro Logic, Dolby Digital, DTS, Ambisonic, etc.), plus THX and Trifield output from two-channel sources. All inputs digitally processed. Of Trifield's synthesized front-three-channels output, KR observed, "I came to regard the loss of air and the narrower soundstage as acceptable concomitants of the richer, tighter, better-defined central images. 'Audiophile air' began to seem an artifact rather than an enhancement." DTS and Dolby Digital 5.1 music recordings "injected" ambiences whose acoustics superseded his room's. Multichannel is immersive, but our KR would rather not sit in the middle of a string quartet or orchestra. For two-channel, "equal to the best...beyond significant reproach." Multichannel, he declared, is the future, and Meridian is ready now. Logical but complicated setup and option procedures entered via PC; heavy dealer involvement is key to getting the best from this ultimate component. But when the 861 is programmed for precise time alignment and amplitude balance among the speakers, and the crossover and bass management adjusted independently for the main, center, and rear channels, "everything seemed just right, and it made for consistently satisfying listening," he decided. "The TriField DSP is a greatly advantageous feature that deserves more recognition. I felt confident that whatever little silver disc I put into the 800-861, it would sound superb." Meridian's new MConfig program replaces pages of configuration options with a drag-and-drop graphic user interface, and offers guided channel-level settings and room-correction setup routines. KR: "The upgraded 861 Reference's sound was delightfully and characteristically transparent....Still Class A after all these years." The updates in Version 6 of the 861 preamplifier-processor include SpeakerLink connections for Meridian's DSP speakers, an "endpoint" card for optimal performance with Meridian's Sooloos music-server systems, a proprietary apodizing upsampling filter for all digital inputs, and 24-bit/192kHz DACs. The 861 v6 partnered a delicately pure and transparent midrange and treble with exquisite delineation of voices and instruments, said KR. "The 861 has always been and still is the best-sounding audio processor I have heard," he concluded. Of the V8 refinements, some—most notably the newly required use of Meridian's SpeakerLink digital cable, which ensures a digital path from source to each speaker's integral amp—impact only users of Meridian's DSP speakers; others include a digital-input card that has a USB input—which itself may open the door for 24/192 input—as well as a linear power supply for lower noise, and redesigned oscillators and clocking that, according to Meridian, reduce jitter by 40%. KR's verdict: "Overall, the Meridian Reference 861, especially in its V8 incarnation, is still my favorite audio preamplifier-processor to live with." Price varies with options chosen. HD621 outboard processor (see "Digital Processors") adds HDMI capability. (Vol.23 No.2, Vol.26 No.8, Vol.29 No.7, Vol.34 No.5, Vol.37 No.11 WWW)

MERIDIAN HD621 HDMI AUDIO PROCESSOR: \$2995 ★

Meridian's HD621 HDMI Audio Processor smoothly integrates six HDMI inputs, HD audio processing, and SD upsampling with any Meridian processor that can handle a Smartlink/MHR, including the G61R, G68, C61R, and the 861. It extracts the PCM audio data from the HDMI input, FIFO-buffers the PCM, and up/downsamples it for output to the main processor. Upsampling is accomplished by "apodizing" filters identical to those used in the Meridian 808i.2 player-preamp. HDMI from the HD621 sounded "more detailed and open" than PCM data via the Oppo DV-980H's three S/PDIF connections, while "Red Book" CD sounded "superb" through the Meridian. "So rejoice—the HD621 brings HD audio to Meridian systems, and it sounds superb with non-HD sources as well," said KR. (Vol.32 No.9 WWW)

NAD MASTERS SERIES M17: \$5499

In KR's view, NAD's Masters Series of products has of late taken a turn from the conservative to the adventurous—evidence of which he sees in the Masters M17, which contains individual, updateable modules for digital video, analog video, digital audio, and analog audio. Although the current model lacks a USB port and audio-data Ethernet port, a fifth module, to support streaming and Bluesound, is said to be in the works. Although KR criticized the poor positioning off the front-panel Off/Standby switch, he declared that "the M17's remote control was an unalloyed delight: slim, and just hefty enough to feel good in the hand." According to KR, "The M17's sound, too, was delightful." He noted dynamics that were "precise and satisfying," and bass that was "delivered with authority"—and that "playing hi-rez and/or multichannel files from my server, connected to the M17 via HDMI, was simply glorious, especially as these signals were passed through a Dirac Live speaker-and-room-correction filter set at [24-bit/96kHz]." (Vol.38 No.1 WWW)

NAD MASTERS SERIES M27: \$3999

No mere afterthought to the Masters M17 pre-pro," according to KR, the Masters M27 is a seven-channel class-D power amp based on the recent Hypex Ncore module. Single-ended (RCA) and balanced (XLR) inputs are provided for all channels, and the Masters M27 is rated at 250Wpc—or 180Wpc with all seven channels driven. A mildly wonky on/off switch was the only fly in this multichannel ointment: KR praised the M27's sound as "notably clean and punchy," adding that "[the amplifier's] midrange and treble were completely free of any grain or, significantly, the grayish character that is a consistent flaw in the sounds of many of the otherwise excellent class-D amps I've used." (Vol.38 No.1 WWW)

PARASOUND HALO A 31: \$3295 \$\$\$

Based on circuitry developed by John Curl for the highly praised Halo JC 1, the three-channel A 31 power amplifier is rated to deliver 250Wpc into 8 ohms or 400Wpc into 4 ohms. Like other Halo models, the A 31 is solidly built and has a clean, attractive, brushed-aluminum faceplate. On the rear panel are three groups of connectors/controls, one per channel, including balanced and unbalanced inputs and gain controls. Though it lacked some upper-bass richness, the A 31 had a "clean, luminous" overall sound, with a sophisticated, detailed treble; rich, clean midrange; and firm, extended bass, said KR, adding that "the sound is full, balanced and detailed and packs a wallop." (Vol.35 No.9 WWW)

PARASOUND HALO P 7: \$2295 \$\$\$ ★

The Halo P 7 is a full-featured analog stereo preamp with six stereo inputs, balanced and unbalanced outputs, front-panel headphone and MP3 jacks, and an MM/MC phono preamp. It also provides two 7.1-channel unbalanced inputs that can be set for home-theater bypass, optional bass management for all sources, and RS-232/12V connections to integrate with modern A/V systems. With its "delightfully open, balanced sound" and outstanding versatility, the Halo P 7 is "the category killer of analog multichannel preamps or HT bypass," raved KR. (Vol.32 No.1 WWW)



ANTHEM MRX 710: \$1999

Made in China, the 90Wpc MRX 710 (originally called

MRX 700) is Anthem's top-model audio/video receiver. It has all the requisite A/V connections, including USB and Ethernet inputs; is compatible with HD radio and iTunes tagging; comes with a complete Anthem Room Correction kit; and uses a large toroidal power transformer. Though it lacked the transparency of Integra's DHC-80.2 and couldn't match the bass clarity of Bryston's 9B-SST, the Anthem offered a warm midrange, well-focused images, and a deep soundstage, said KR. (Vol.35 No.1 WWW)

MARANTZ MM8077: \$2399

The 150Wpc MM8077 is a seven-channel power amplifier. Each channel has selectable unbalanced RCA and balanced XLR inputs, driven by a common power supply equipped with a huge transformer and a generous capacitor reservoir. The MM8077 matched the much more expensive Bryston 9BST in terms of power, transient response, and imaging, but lacked some bass definition and control, said KR. An excellent multichannel amplifier, and a perfect partner for Marantz's AV8801 pre-pro, he concluded. (Vol.36 No.3 WWW)

NAD T 187: \$2999

The versatile T 187 preamplifier-processor's modular construction enables various combinations of: 7.1-channel inputs and outputs, six pairs of stereo analog inputs and outputs, several video inputs, up to six HDMI inputs, three each coaxial and optical inputs, one each coaxial and optical output, an Ethernet jack, and a mini stereo jack for mobile players. Additionally, the NAD's unique application of Audyssey's MultEQ XT room-correction software includes a custom target curve developed by Paul Barton. Easy to set up and use, the T 187 offered a full-bodied sound with a smooth, detailed treble, said KR. Paul Barton's target curve added a touch of warmth, with stronger, tighter low bass. "Even if it doesn't do everything possible, the NAD T 187 does everything right," concluded KR. (Vol.36 No.1 WWW)

ROTEL RMB-1585: \$2999

A powerful and transparent 5-channel amplifier. (Vol.37 No.9 WWW)

ROTEL RSP-1572: \$2199 ★

This compact, handsome preamplifier-processor offers six HDMI, two component, and two composite video inputs; two HDMI, one component, and four composite video outputs; four optical and three coaxial digital audio inputs; eight stereo analog inputs; one 7.1-channel analog input; and one USB input. Audio outputs include one optical, one coax digital, two stereo analog, and one analog 7.1-channel preamp output with dual jacks for two center and two subwoofer outputs. While the RSP-1572 lacks auto-setup and room EQ capabilities, its variable filters allow the user to effectively deal with room acoustics. The Rotel offered transparent highs, a clean midrange, and full bass, said KR. "Those of us who don't mind getting our hands dirty with some measurement tools can have it all with the RSP-1572: great sound and great looks," he concluded, though he adds that the room EQ is a bit challenging. (Vol.35 No.3 WWW)

YAMAHA AVENTAGE CX-A5000: \$2999.95

In addition to its 33 CinemaDSP modes and extensive video processing, the substantial (17" W by 7.5" H by 18" D, 30 lbs) Aventure CX-A5000 pre-pro offers 11 channels of balanced outputs, dual audio configurations, the ability to stream 24-bit/192kHz FLAC and WAV files, ESS Technology Sabre32 Ultra DACs for all channels, and Yamaha's parametric EQ room-optimization software with multi-point/speaker-angle measurement. Yamaha's graphic user interface was attractive and intuitive, and the included remote, though difficult to read, was powerful. Compared to the popular Marantz AV8801, the CX-A5000 lacked low-end resolution but extracted more information from the upper midrange and treble, said Kal. "Once they hear it, many listeners will pounce on this excellent pre-pro," he concluded. (Vol.37 No.3 WWW)



NUFORCE AVP-18: \$1095

Built into a slim, minimalist case, the AVP-18 multichannel preamplifier-processor offers two coaxial, one TosLink, one combination coax/optical, and four 24-bit/192kHz-

"The word that best describes the sound is balanced...a balance of the various sonic attributes most valued by audiophiles."

-Robert Deutsch, *Stereophile*

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TWO-CHANNEL PREAMPLIFIERS

MUSIC SURROUND-SOUND COMPONENTS (OTHER THAN SPEAKERS AND DISC PLAYERS)

capable HDMI inputs; USB A and B connectors; an output jack for a 12V trigger; an HDMI output; a TosLink output; and a 2x4 array of RCA jacks for the 7.1-channel analog output. An 11-filter parametric EQ is provided via a potent Cirrus chipset. Setup was relatively simple and operation was flawless. Although the NuForce lacked some soundstage depth and lower-midrange richness, its overall sound was well balanced and satisfying, with good detail resolution and image specificity, said Kal. "The all-digital NuForce AVP-18 is a good choice for an easy-to-use and easy-to-look-at preamplifier-processor," he summed up. (Vol.36 No.11 WWW)

YAMAHA AVENTAGE MX-A5000: \$2999.95

Measuring 17" W by 8.25" H by 18" D and weighing 56 lbs, the MX-A5000 is a massive and versatile 11-channel amp rated to deliver 150Wpc into 8 ohms. Rear-panel Channel Select switches and front-panel Speaker Select buttons permit a wide range of configurations, including: five-channel biamping, five main channels with two independently amplified zones, a triamped center channel in a mono- or biamped five-channel system, and other, more specialized arrangements. A perfect sonic partner for Yamaha's Aventure CX-A5000 pre-pro, the MX-A5000 produced a clean, open overall sound, with a slightly soft treble, well-defined midrange, and solid bass, said Kal. "If you need 11 channels, regardless of how you choose to use them, I highly recommend Yamaha's MX-A5000," he concluded. (Vol.37 No.3 WWW)

K**CLASSÉ SIGMA SSP, EMOTIVA XMC-1, AND MARANTZ AV-8802 PROCESSORS, CLASSÉ SIGMA AMP5 5-CHANNEL POWER AMPLIFIER.**

TWO-CHANNEL PREAMPLIFIERS

Editor's Note: Apart from the CAT, Fi, Shindos, and Placette, all the Class A preamplifiers offer balanced inputs and outputs. And unless noted, the preamplifiers listed do not have phono stages.

A**AUDIO RESEARCH REFERENCE 5SE: \$13,000**

The Ref 5 SE is a tubed, remote-controlled line preamp with six sets of balanced and unbalanced inputs, three sets of balanced and unbalanced outputs, and a unity-gain Processor input. It uses 6550C and 6H30P tubes for power-supply regulation, and four 6H30P dual-triodes in the analog stage. Improvements over the original Ref 5 include new Teflon and hybrid coupling and bypass capacitors, new internal wiring, and a vertically mounted circuit board that nearly doubles the earlier version's energy storage. The Ref 5 SE exhibited incredible detail retrieval, bold and nuanced tonal color, outstanding dynamic range, and large soundstages with a slightly forward perspective, said BD. "The Reference 5 SE gets my highest recommendation," he concluded. JA noted superb measured performance. Compared to BJR's reference Audio Valve Eclipse, the ARC offered longer decays and resolved more inner detail but lacked some low-end impact. (Vol.35 No.11, Vol.36 No.2 WWW)

AUDIO RESEARCH SP20: \$9000

ARC's first full-function, line-plus-phono preamp in ages—and their first-ever preamp to offer a headphone output—the new SP20 is a pure class-A, fully balanced, hybrid design. Its 19"-wide chassis blends styling cues from ARC's early days with a modern touchscreen, and the SP20's similarly modern remote handset provides control over volume, source selection, channel balance, cartridge loading, stereo/mono switching, absolute phase inversion, and more. The preamp uses a total of four 6H30 dual-triode tubes and provides 13.8dB of line gain, plus up to 58dB of phono gain. BJR cited the SP20's "detailed, delicate, extended high frequencies," "bass beyond reproach," and "superb resolution of detail"—and surprised some of us by declaring the new preamp's phono section superior to his (very) long-term reference, the Vendetta SCP-2D.

Regarding line-stage performance, BJR maintained a slight preference for the better "high-level dynamic slam" of his Audio Valve Eclipse. JA's measurements gave the "well-engineered" SP20 a clean bill of health, noting in particular the phono section's "extremely accurate" RIAA equalization. (Vol.37 No.6 WWW)

AYRE ACOUSTICS KX-R TWENTY: \$27,500

It would seem an impossible task: improving on a preamplifier—the Ayre KX-R—that sounded better to JA than no preamplifier at all. But that was the hurdle set for the new KX-R Twenty, named in honor of Ayre's 20th year of operation. More of a complete redesign than an upgrade of the original, the KX-R Twenty employs AyreLock, a new, proprietary approach to power-supply regulation that seems equal parts calculus and poetry. Also involved were similarly big changes to the active circuitry, including the adoption, in this model, of the "diamond" output circuit of the company's X-5 series—if only because, in the words of chief engineer and CEO Charles Hansen, it proved to work "so insanely well." Of his time with the new Ayre, JA wrote, "Some highly resolving audio components achieve their transparency to what has been captured on a recording by emphasizing detail. The Ayre simply cleaned the window." JA's listening notes were ripe with examples of fine performance at various sonic tasks, but in the end, his view was holistic: "The Ayre evoked the words Peter Schaffer has Antonio Salieri saying, in *Amadeus*, about the entry of the solo oboe in this music: 'This was a music I'd never heard. Filled with such longing, such unfulfillable longing. It seemed to me that I was hearing the voice of God.'" (Vol.37 No.12 WWW)

AYRE ACOUSTICS K-5XEMP: \$3500 ★

Like all of Ayre's 5-series products, the K-5xe uses the Ayre Conditioner, a built-in RFI filter that works in parallel with the AC line to reduce background noise, grain, and hash. The original K-5xe added nothing to the original signal and had no sonic signature of its own. ST: "It just got out of the way" subsequently adding that this "superb solid state line-stage preamp is everything you could ask for: neutral, detailed, dynamic, exceptionally low noise, fun to use." JA felt high Class B was a fair rating for the original version; the Maximum Performance (MP) version incorporates rare, low-noise Toshiba J-FETs for the output buffer stage. The K-5xe^{MP} had dynamics equal to that of the original K-5xe, but produced quieter backgrounds and had a friendlier, more accurate overall balance, with better delineation of images within a wide, deep soundstage. Though it lacked the top-end air of the Parasound Halo JC 2, the Ayre sounded warmer overall, with a fleshier lower midrange. Its measured performance was "about as good as it gets for a solid-state preamplifier," said JA. Black finish adds \$250. (Vol.29 No.5 original version; Vol.34 No.6 MP version WWW)

BOULDER 2110: \$55,000

Given that its predecessor, the model 2010, enjoyed a 17-year run in Boulder Amplifiers' product line, much was expected of the new 2110 line preamplifier: a multibox solid-state model in which user functions are optically controlled to eliminate noise, and whose six inputs are characterized by an impressive degree of adjustability and flexibility of configuration. All of its inputs and outputs are fully balanced, addressed only with XLR jacks, and the 2110 goes the 2010 one better by adding a fully differentially balanced volume control. Using the Boulder 2110 with his darTZeel NHB-18NS mono amps in balanced mode, MF observed that "[it] produced image intensity, physicality, and solidity that were unprecedented in my experience. First take: a giant Wow." MF elaborated: "It made recordings I know to be truly exceptional sound even more so through my system." With the Boulder pre on his test bench, JA observed, "The 2110's distortion is so low, in fact, that it taxed my ability to measure it." JA ultimately pronounced the 2110 "the best-measuring preamplifier I have encountered." (Vol.38 No.3 WWW)

CLASSÉ CP-800: \$6000 ★

A new breed of audio component, the versatile CP-800 is a remote-controlled, solid-state preamplifier with a touchscreen display, DSP-implemented tone and equalizer controls, 10 digital inputs (AES/EBU, three S/PDIF on

coax, four S/PDIF on TosLink, asynchronous USB, front-panel USB host connector), five analog inputs (two pairs balanced, three pairs unbalanced), and seven analog outputs (three pairs balanced, three pairs unbalanced, and a front-panel headphone jack). One of the first products to come from Classé's Chinese manufacturing plant, the attractive, solidly built CP-800 shares the curved aluminum front panel of earlier Classé Delta-series products. Though it lacked some flesh and warmth, the Classé produced a clean, clear, and detailed overall sound, with an especially delicate treble, said JA. On the test bench, the Classé's digital input showed about two bits' worth less resolution than the current state of the art, but its analog performance was beyond reproach. (Vol.35 No.9 WWW)

CONVERGENT AUDIO TECHNOLOGY**SL1 RENAISSANCE BLACK PATH: \$9995 ★**

The latest iteration of the heralded SL1 boasts a new circuit-board layout and improved power supply. It also includes an A/V bypass, user-selectable gain, and a switch-selectable, moving-coil transformer for the phono stage. Compared to the SL1 Ultimate, the Renaissance offered greater transparency, resolution, and dynamics, said RD. JA noted "superb measured performance and an equally superbly linear circuit topology." Phono stage adds \$2000. (Vol.32 No.11 WWW)

DAN D'AGOSTINO MASTER AUDIO SYSTEMS MOMENTUM: \$32,000

Among the most beautiful pieces of audio gear that MF has seen or touched, the Dan D'Agostino Momentum echoes the sculpted aluminum-with-copper, quasi-steam-punk cosmetics of the Dan D'Agostino Momentum power amplifier—but with a chunky, round volume control/level meter in place of the amplifier's chunky, round, output-power meter. As MF observed, "The complementary, balanced, zero-feedback Momentum is DC-coupled, has no capacitors in the signal path, and features fully discrete circuitry with no op-amps. Volume adjustment is via an optical controller and resistor ladder." User controls for the line-level-only, low-gain Momentum—all available on the impressive remote handset, most on the front panel—include absolute signal polarity, channel balance, source selection, mute, and *tone controls*. The main unit and its curvy and cunningly designed outboard power supply—the former sits atop the latter—are electrically connected via a multipin umbilical. After listening, MF commented: "In the Momentum, Dan D'Agostino has produced a preamplifier that duplicates the Momentum amp's delicacy, transparency, three-dimensionality, and especially its liquidity and freedom from grain without softening transients—all floating above the blackest backdrops." Summing up his measurements, JA noted that "the Momentum preamplifier lives up to Dan D'Agostino's reputation for heroic audio engineering." (Vol.37 No.8 WWW)

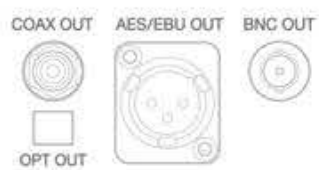
DARTZEEL NHB-18NS: 31,700 CHF ★

The "stunningly transparent" darTZeel offered spectacular transient speed, resolution, and decay, while providing an overall coherence that "made recorded music, analog or digital, sound much closer to live," said MF. Bass lacked some authority, and the sound sometimes had "a slight velvety finish." With its warm, vivid combination of red chassis and dark gold front and rear panels, the NHB-18NS "looks like it sounds." Its fully dual-mono design, lack of global negative feedback, and ultrawide bandwidths are meant to eliminate phase shifts at the frequency extremes. JA was "puzzled" by some aspects of the darTZeel's measured performance, particularly the much poorer performance through the balanced inputs and outputs, but was overall impressed by the level of audio engineering. Compared to the harmonically rich Musical Fidelity AMS Primo, the darTZeel offered a more clinical sound: tighter bass, greater transparency, more precisely defined images, shorter sustain, and a diminished sense of musical flow. Compared to Einstein Audio's The Tube Mk.II, the NHB-18NS sacrificed bass weight for greater top-end air, transient speed, and bass extension, said MF. The darTZeel matched the resolution and transparency of the mbl 6010 D while managing to sound less mechanical, said MF about his reference preamp as of summer 2008. (He bought one!) US price will depend on the exchange



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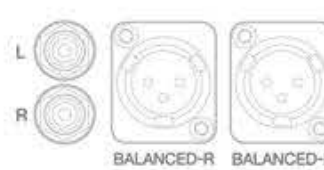
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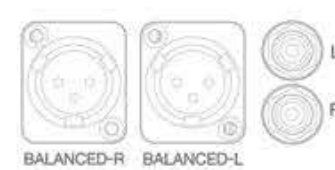
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TWO-CHANNEL PREAMPLIFIERS

rate from Swiss francs. (Vol.30 No.6, Vol.31 No.10, Vol.33 Nos.5 & 10 WWW)

LAMM INDUSTRIES LL1 SIGNATURE: \$42,790

The dual-mono Lamm Industries LL1 Signature may not be the only four-box line preamplifier, but, according to BJR, it stands as “a stunning design” “stunningly executed.” With design roots in the driver stage of Lamm’s ML3 Signature power amp, the single-ended LL1 uses four high-transconductance 6N30P dual-triode tubes, connected in parallel, in the preamp stage of each channel, plus two 6X4 full-wave rectifier tubes in each channel’s outboard power supply. In his listening tests, BJR described being “floored by the several areas in which [the LL1] achieved levels of performance I hadn’t thought possible,” mentioning in particular the Lamm’s “sense of unfettered, dynamic ease and drama,” its “clean, crisp, uncolored, fast, deep, gut-slammng bass” (we think he liked it), and the LL1’s “ability to render each instrument within its own dynamic envelope.” JA observed, “Summing up the LL1’s measured performance is easy: This is a superbly well-designed preamplifier.” (Vol.37 No.8 WWW)

LUXMAN C-600F: \$9000 ★

The solid-state C-600f has five single-ended and two balanced inputs, two single-ended and two balanced outputs, and a tape-processor loop, but no phono stage. Its bass and treble controls, as well as phase inversion and channel balance, are operable from the supplied remote control. Partnered with Luxman’s MQ-88 power amplifier, the C-600f has an open, transparent sound with “a wonderful balance of detail and warmth,” said JM. (Vol.35 No.4 WWW)

MBL 6010 D REFERENCE: \$26,500 ★

The 77-lb 6010 D is an impressive-looking, superbly finished preamp with a black-lacquered façade, gold-plated volume and input knobs, and top-mounted input-level trim pots and tape-monitoring buttons. The MBL sounded “very quiet, transparent, and dynamic,” with a slightly lean bottom end and “slightly aggressive but airy, clean, and well extended” top end, said Mikey. Though the 6010 D’s reproduction of space was good, it could not match the image dimensionality or soundstage width and depth of the dArtZeel NHB-18NS. Its measured performance, however, was “beyond reproach,” determined JA. Used in an all-MBL system with Reference 9011 monoblocks driving Radialstrahler 101E Mk.II loudspeakers, the 6010 D worked to create clean, extended top octaves, fast transients, and a taut, muscular low end, said MF. Price includes remote and balanced input. (Vol.31 No.10, Vol.35 No.3 WWW)

MUSIC FIRST AUDIO BABY REFERENCE:**\$8590 ★**

Slightly larger than Music First’s less expensive Classic v2, the Baby Reference passive preamp measures 9.75" W by 3.4" H by 10.1" D and is available with a black, blue, red, or clear anodized faceplate. Standard connections include two balanced XLR inputs, four unbalanced XLR inputs, and one pair each of balanced and unbalanced outputs. Like the Classic, the Baby Reference provides 24 discrete volume steps, including mute, but forgoes the Classic’s +6dB gain switch and uses a larger, more complex transformer. The sound was smooth, sweet, and extended, with exceptional transient speed and surprisingly deep bass, said ST. “[The Baby Reference] is the best preamp I’ve had in my system,” he concluded, “probably because it’s not a preamp at all.” Compared with the Promitheus Audio Reference TVC4, the Music First offered deeper bass, cleaner treble, greater openness, and less dynamic congestion, said ST. (Vol.35 No.10, Vol.36 No.5)

MUSIC FIRST AUDIO CLASSIC MAGNETIC V2:**\$5290**

The Classic Magnetic V2 transformer volume control (identified as the V2 when reviewed) has two balanced and four single-ended inputs and one pair each of balanced and single-ended outputs. For improved low-frequency response and power handling, it uses transformers with mu-metal cores 25% larger than those found in the original Classic Magnetic. The sound was clean, smooth, and transparent, with surprisingly taut bass, said ST. (Vol.35 No.6)

NAGRA JAZZ: \$11,650–\$14,500, DEPENDING ON OPTIONS

The Jazz is a tubed line preamp with one pair balanced and four pairs single-ended inputs, and one pair balanced and two pairs single-ended outputs. It uses a 12AX7 dual-triode input-stage tube and a 12AT7 gain-stage tube. Measuring 12" W by 3" H by 10" D and weighing 7 lbs, it has a faceplate machined from a solid billet of aluminum, giving it the rugged, purposeful look and feel common to Nagra components. Though it lacked some bottom-end impact, the Jazz had a clean, clear, revealing sound with an uncolored midrange, extended highs, and lightning-fast transients, said BJR. “I enjoyed every piece of music I listened to through the Jazz, even when it ruthlessly revealed differences in recording quality,” he concluded. JA noted excellent measured performance. (Vol.36 No.4 WWW)

PARASOUND HALO JC 2 BP: \$4795 \$\$\$ ★

Styled to match the JC 1 power amplifier and finished in the same brushed, natural aluminum, the JC 2 exhibits a high standard of construction. Each channel of the fully balanced JC 2 is on a separate PCB, with the audio and control power supplies on separate circuits, isolated from each other by $\frac{3}{8}$ "-thick aluminum partitions. ST was impressed by the JC 2’s noiseless operation and excellent reproduction of space, which allowed music “to emerge intact—with body, bloom, and dynamics, with definition and detail—from an utterly silent background.” JA agreed, but decided the JC 2 sounded best with warmer-sounding amplifiers and speakers, when it excelled in the areas of images and dynamics. “Perhaps the finest solid-state line stage I have heard,” sums up ST. “This is what a great line stage does: lets all the other components perform at their best. The Halo JC 2 matched the Ayre KX-R in terms of openness and sparkle, but sounded leaner and could not reach the Ayre’s level of deep musicality, said WP. Compared to the Simaudio Moon Evolution P-7, the JC 2 sacrificed body for leading-edge definition, felt JA. One of *Stereophile*’s “Joint Amplification Components” for 2008. Configured for home-theater bypass, the BP version of Parasound’s excellent JC 2 preamplifier (\$4795) has a revised circuit board and front-panel control board that make possible the hybridization of a traditional analog two-channel system with a modern digital multichannel system. The Halo JC 2 BP looks almost identical to the Halo JC 2, with only the Bypass LED on the front panel and the letters “BP” added to the labeling front and rear. It offers both balanced RCA and unbalanced XLR inputs and outputs. KR heard no difference between a direct connection from pre-pro to power amp and a connection via the JC 2 BP’s bypass function. Owners of existing JC 2s can have their units upgraded to BP status for \$500. (Vol.30 No.12, Vol.31 Nos.3 & 11, Vol.32 No.3, Vol.34 No.6 WWW; “BP version Vol.34 No.3 WWW)

PASS LABS XP-30: \$16,500

In its conventional two-channel model, the XP-30 comprises three separate chassis: one each for its control circuitry and power supply and each channel’s audio circuitry. Using additional chassis, the XP-30 can be expanded to as many as six channels. Each audio chassis has both a Master and a Slave analog output, duplicated on balanced XLRs and single-ended RCAs; and six analog inputs, also duplicated on balanced XLRs and single-ended RCAs. The XP-30 uses an integrated-circuit volume control. It virtually transported JA to recording studios and performance spaces, consistently drawing his attention to aspects of music rather than of sound. “The XP-30 has rekindled for me the concept that the beating heart of an audio system is the preamplifier,” he said. Measured performance was superb. (Vol.36 No.4 WWW)

PLACETTE AUDIO ACTIVE LINE STAGE: \$6995 ★

The Active Linestage is intended to combine the transparency of Placette’s purist Remote Volume Control with a usable level of functionality, providing five sets of unbalanced inputs, two sets of outputs, and a tape loop. Its absolute clarity, focus, solidity, and transparency were unrivaled in BD’s experience. “Highly recommended.” Sold direct, with a lifetime warranty and 30-day refund policy. (Vol.30 No.11 WWW)

PROMITHEUS AUDIO REFERENCE TVC: \$890 \$\$\$

Made by Nicholas Chua in Kuala Lumpur, the TVC4 passive preamp is housed in a compact (12.2" W by 3.75" H by 9" D) chassis made of merbau, an endangered Malaysian hardwood. It has two transformers per channel, separate left and right volume controls, and offers four pairs of unbalanced inputs and two pairs of unbalanced outputs. Though it lacked the tight bass, extended treble, and transparency of the much more expensive Music First Baby Reference, the TVC4 produced a warm, rich, tube-like sound, said ST. “Promitheus Audio’s Reference TVC4 is worth the money and more,” he concluded. Add \$80 for shipping to the US from Kuala Lumpur. (Vol.36 No.5)

SHINDO MASSETO: \$13,500 ★

Like the less-expensive Aurieges, the Masseto is a full-function preamplifier, but adds a selectable choice between moving-magnet and moving-coil phono inputs. The dual-mono power supply is based on a pair of Philips 6X4WA rectifier tubes, the phono stage uses one Philips 6189W and one Philips 12AT7 per channel, and its line stage uses a single LCP86 triode/pentode per channel. With a “stunningly low noise floor,” the Masseto consistently conveyed music in a way that allowed Art to become fully immersed in the performance. “Time after time,” he said, “I found myself responding to my hi-fi the way I respond to real music.” The Masseto’s stock input MC transformer was “quiet in every way,” and worked especially well with Art’s Miyabi cartridge, providing “loads of texture, and enough drama to keep me happy indefinitely,” he said. AD’s reference preamp since 2007. Current model uses the same basic line, phono, and power-supply circuits found in the original, but has a fancier faceplate. Art has found that the Masseto does not respond well to isolation devices, aftermarket AC cords, or alternate tubes, and he recommends very gentle insertion and removal of interconnects to avoid damaging the Masseto’s fragile Switchcraft RCA jacks. Still, the Masseto remains “satisfyingly musical and downright right,” he said. “The most beauty you can buy for this kind of money.” (Vol.30 Nos.7 & 10; Vol.36 No.6 WWW)

SIMAUDIO MOON EVOLUTION 850P: \$30,000

The solid and beautifully built 850P is a two-chassis, dual-mono line-stage preamplifier with three balanced and four unbalanced inputs, a monitor/signal-processor loop, and two sets each of balanced and unbalanced outputs. It uses Simaudio’s M-Octave mechanical damping system to decouple the audio circuit board from the chassis with eight compliant feet, each made of an elastomeric material and pre-loading chosen for their ability to damp the frequencies relevant to that part of the board. The 850P’s complex power supply incorporates 40 examples of Simaudio’s unique Independent Inductive DC Filtering topology, and its M-Ray volume-control circuit allows the user to precisely and quickly fine-tune the level in increments of 0.1 or 1dB. The sound was exceptionally transparent, with expertly reproduced transients, sharp image focus, and an outstanding sense of space, said BD. “No doubt about it,” JA agreed—“Simaudio’s Moon Evolution 850P is one of the best-measuring preamplifiers I have encountered.” (Vol.36 No.12 WWW)

TAD LABORATORIES C600: \$42,000

Part of TAD’s Reference line, the C600 is a dual-mono, solid-state line preamplifier with a substantial external power supply. It measures 17.5" W by 5.9" H by 17.2" D, weighs almost 64 lbs, and has an attractive chassis of brushed anodized aluminum. It offers three unbalanced and three balanced inputs, two unbalanced and two balanced outputs, and two buffered Tape outputs. Each of the C600’s inputs is associated with its own relay-controlled preamplifier, ladder resistor attenuator, and gain stage. The C600 combined airy highs, a somewhat lean midrange, and powerful bass for a sound that was exciting, resolute, and ruthlessly revealing, said MF. “TAD’s C600 is a meticulously designed and exceptionally well-built high-tech wonder,” he concluded. “Its construction and audio engineering are beyond reproach,” JA added. (Vol.36 No.6 WWW)

VTL TL5.5 SERIES II SIGNATURE: \$8000

VTL’s most expensive all-tube preamplifier retains the basic circuit topology of the original TL-5.5 with a lower-

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gain, high-current 12AU7 tube circuit, a 12AT7 tube buffer, minimal negative feedback, and a low-impedance output stage. It uses a new, precision-regulated power supply and has a 117-step, chip-based differential volume control. There are two pairs of inputs that can be operated in either balanced or single-ended mode, as well as six additional single-ended inputs. Though it wasn't as resolving or detailed as the Nagra Jazz, the VTL produced delicate highs, a voluptuous midrange, and punchy bass, said BJR, adding "an extraordinary sense of lower bass extension and high level dynamic slam." "VTL's TL-5.5 Series II Signature is a nicely engineered preamplifier that offers no measured compromise resulting from its use of tubes," added JA. Optional phono stage adds \$2500. (Vol.36 No.6 WWW)

YPSILON PST-100 MK2: \$37,000 ★

Made in Greece, the PST-100 is a handsome tubed preamplifier housed in a thick, satin-finished aluminum chassis. It features transformer-based attenuation, 6CA4 tube rectification, choke supply filtering, a switchable passive mode, and a zero-feedback active stage based on a carefully selected Siemens C3m pentode tube. Though differences between the PST-100's active and passive stages were small, MF preferred the passive stage for its purer, more transparent sound. Compared to the darTZeel NHB-18NS, the Ypsilon produced more vivid tonal colors and greater physicality. "For now," MF concluded, "the Ypsilon PST-100 is the most transparent and, therefore, the most perfect audio component I have ever heard—or not heard." Though XLR input and output jacks are provided, the circuitry is unbalanced only. Without a line stage, the completely passive PST-100 TA costs \$26,000. (Vol.34 No.7 WWW)

ZESTO AUDIO LETO: \$7500

As BJR put it, the word that best describes the technical design of the "drop-dead-gorgeous" Zesto Audio Leto line-level preamplifier is simplicity: its per-channel tube complement of one 12AX7 dual-triode and one 12AU7 dual-triode provides up to 12dB of gain—which the user can switch to 3dB, if the need arises to stay within the volume control's most accurate range. All switching is done with reed relays, and BJR described the stripped-down remote control as "the most minimalist I've ever encountered." In addition to single-ended operation, the Leto offers transformer-coupled, true-balanced inputs and outputs. The Zesto Leto was capable of great musical delicacy, BJR noted, and "it most impressed . . . with its ability to articulate transients." He was also "astounded by the Leto's wide and linear dynamic range," although, on the downside, "the Zesto seemed to run out of gas a bit in the loudest passages; in short, [its] dynamic range seemed to stretch only from *ppp* to *ff*." In his measurements, JA was impressed overall, noting in particular that "the Leto's distortion signature doesn't change with level, frequency, load impedance, or at different volume-control settings." (Vol.37 No.4 WWW)

B**PARASOUND HALO P 7: \$2295 ★**

Full-featured analog stereo preamp with six stereo inputs, balanced and unbalanced outputs, front-panel headphone and MP3 jacks, and an MM/MC phono preamp—See "Multichannel Components." Delightful sound but "falls asymptotically short of the delicacy of the Nagra and Simaudio preamps I have used," says KR. (Vol.32 No.1 WWW)

PARASOUND HALO P 5: \$1095 \$\$\$

The 2.1-channel Parasound Halo P5—the ".1" hints at the P5's three subwoofer outputs, which incorporate user-adjustable high- and low-pass filters—is a solid-state line-and-phono preamplifier equipped with a balance control, defeatable tone controls, an analog iPod input, electronic source switching, a headphone jack, and a built-in 24-bit/192kHz D/A converter with a USB input. AD observed: "On paper . . . the Parasound P5 seemed like an awful lot of product for the money; that impression was borne out in my system." He described the preamp as slightly dry sounding but with "enduringly good musical flow and momentum, and superb freedom from distortions of pitch or timing." While the P5's built-in DAC was

pleasantly clear, AD suggested that it was no match for the more colorful, substantial Halide DAC HD; in his measurements, JA concurred, saying the P5's digital section is best "regarded as more of a convenience" feature, while praising the analog preamp's "excellent performance at an affordable price." (Vol.37 No.4 WWW)

Editor's Note: There are currently no Class C preamplifiers listed.

D**EMOTIVA CONTROL FREAK: \$49**

To the minimalist audiophile whose system combines a single source component with an amplifier that lacks a level control, the Emotiva Control Freak would seem a boon. The Control Freak even dispenses with the box: It is, as ST put it, "A set of interconnects with a volume control in the middle." Other than that, the only thing ST had to say was, "I love the feel of the Emotiva." There you go. Balanced version costs \$59. (Vol.37 No.12)

SCHIIT AUDIO SYS: \$49

ST, to whom the concept of a simple and gainless preamp has great appeal—"Why do you need so much gain if all you're going to do is dial it back[?]"—was attracted to this latest piece from Schiit. The SYS provides two pairs of input jacks, a switch for choosing between them, a volume control, and one pair of output jacks. Compared with an \$8500 transformer-based passive preamp, the Schiit disappointed in its lack of ability to "expand dynamics and quiet background noise." But, said ST, "The Schiit SYS preamp introduced no crap of its own. No power-supply noise, no tube farts, no glare." His verdict: "You almost owe it to yourself" to try the Schiit SYS. (Vol.37 No.12)

K**LUXMAN CL-38U, SIMAUDIO MOON EVOLUTION 740P, VAC SIGNATURE MK.IIA.**

DELETIONS

Conrad-Johnson ET3 SE, Fi 2b, Shindo Vosne-Romanee, all not auditioned in a long time.

TWO-CHANNEL POWER AMPLIFIERS

Editor's Note: Because of the disparity between typical tube and solid-state "sounds," we have split Class A for separate power amplifiers into two subclasses. Nevertheless, even within each subclass, Class A amplifiers differ sufficiently in character that each will shine in an appropriate system. Careful auditioning with your own loudspeakers is therefore essential. Except where stated, output powers are not the specified powers but rather those we measured into an 8 ohm resistive load. All amplifiers are stereo models, except where designated.

A (SOLID-STATE)**ATC P1: \$3999**

No strangers to the making of solid-state amplifiers—ATC has, for decades, specialized in building self-powered speakers for the pro and domestic markets—the British firm now sells a 150Wpc standalone power amplifier. The P1 is said to offer wide bandwidth (2Hz–400kHz) and a high damping factor (400), plus true balanced inputs alongside its unbalanced RCA jacks. (ATC recommends the former for best performance.) After spending a number of weeks with the P1, JM concluded that "the P1 did not editorialize on the music; it just delivered it." Indeed, his time with the ATC P1 led JM to wonder if perhaps another recommendable amp was, by comparison, adding a bit of "zip" to the sound, "and that perhaps the ATC P1 was telling the story straight." JM concluded: "I am unaware of any other amplifier built from discrete components with this level of build quality, and from a firm with a record of accomplishment similar to ATC's, that offers so much excellent wattage at such a comparatively low price." (Vol.37 No.10 WWW)

CLASSÉ CA-M600 MONOBLOCK:**\$14,000/PAIR****CLASSÉ CT-M600 MONOBLOCK:****\$13,000/PAIR ★**

In a mundane-looking black box with a detachable rack-mount front panel that matches the styling of Classé's CT-SSP preamplifier-processor, the CT-M600 is rated to deliver 600W (700W at actual clipping) into 8 ohms. It employs Classé's Intelligent Cooling Tunnel, in which internal heatsinks are mated to a microcontroller to actively ensure a thermally stable environment. All the audio circuitry, including the 36 output devices, is carried on two six-layer boards, allowing signal paths to be very short and keeping the amplifier's noise floor very low. The CT-M600 was the "consummate chameleon," drawing the best from a wide variety of loudspeakers, providing enormous dynamic range, deathly quiet backgrounds, and intensely saturated colors. "They are the best-sounding amplifiers I have auditioned in my system [as of 2013]," said JA. Compared to the massive Musical Fidelity AMS100, the CT-M600 offered better upper-bass definition and slightly more upper-frequency energy, but lacked the AMS100's sweet, forgiving treble, said JA. The CA-M600 is essentially the same amplifier, housed in Classé's traditional Delta-series enclosure, with its brushed-aluminum front panel curved around to form the side panels. (Vol.34 Nos.3 & 9 WWW)

CONSTELLATION CENTAUR MONOBLOCK:**\$54,000/PAIR**

The 103-lb Performance Centaur Mono is rated to deliver 500W into 8 ohms, features minimalist industrial design by Alex Rasmussen, and offers conventional balanced and unbalanced inputs as well as a Direct XLR input for use with Constellation preamps. Utilizing Constellation's proprietary Balanced Bridge topology, each Centaur Mono includes a pair of carefully matched amplifiers, both using only N-channel MOSFETs. Though they lacked ultimate bass depth and definition, the Centaurs produced a fast, open, transparent sound that was ruthlessly revealing, but never unnaturally harsh or edgy, said MF. For best results, the Centaurs' open sound will require careful matching of associated gear, and especially careful choice of cables, he cautioned. "Constellation Audio's Performance Centaur Mono is a powerhouse of an amplifier capable of delivering very high power with very low distortion into 4 and 8 ohms," JA concluded. (Vol.36 No.11 WWW)

DAN D'AGOSTINO MOMENTUM MONOBLOCK:**\$55,000/PAIR**

Dan D'Agostino's statement product, the 300W (450W at actual clipping into 8 ohms) Momentum has a compact chassis (12.5" W by 5" H by 21" D) machined from a single aluminum billet. A large, round power meter dominates the front panel, while thick copper side panels act as heatsinks. The low-feedback, fully complementary, balanced design uses 1% metal-film resistors and two dozen 69MHz output transistors in a direct-coupled, discrete, bipolar output circuit with a claimed frequency response of 20Hz–20kHz, ± 0.1 dB. The Momentums produced a seamless overall sound, with slightly reserved highs, a tube-like midrange, and an authoritative bottom end, said MF. "With the darTZeel NHB-458, it's one of the two most satisfying power amplifiers I've ever heard," he concluded. "This is an amplifier that is as well engineered as it is beautiful to behold," said JA. Add \$5000 for black finish. (Vol.36 No.2 WWW)

DARTZEEL NHB-458 MONOBLOCK:**151,000 CHF/PAIR**

Made in Geneva, Switzerland, the 450W (530W at actual clipping) NHB-458 measures 18" H by 11" W by 20" D, weighs 154 lbs, and has a deep-gold, brushed front panel and retro-industrial, red-anodized case. Tinted glass side panels allow magnetic fields to escape the chassis and reveal the amp's enormous cylindrical transformer. The large rear-panel heatsink has a cutout for connections that include RCA and XLR inputs, as well as a Zeel BNC 50 ohm input, for use with darTZeel's NHB-18NS preamplifier and Playback Designs' SACD player and DAC. It combined outstanding speed, precise high-frequency transients, and unlimited dynamic range with powerful bass and

TWO-CHANNEL POWER AMPLIFIERS

unsurpassed transparency, said MF. “The darTZeel NHB-458 is easily the finest power amplifier I have ever heard in my listening room,” he concluded. At a price! (Vol.35 No.8 WWW)

LAMM INDUSTRIES M1.2 REFERENCE**MONOBLOCK: \$27,190/PAIR ★**

The 110W M1.2 with tube front end and MOSFET output stage, comprehensive short-circuit protection, and high/low impedance settings, offered “unflinching honesty in conveying the true nature of the music that passed through it,” said PB. “Utterly continuous and coherent from top to bottom,” the M1.2 combined resolution and transparency with harmonic completeness, timbral richness, and glow. JA concurs. Compared to the Classé CT-M600 and MBL 9007, the Lamm had a more robust, less delicate sound, but nevertheless impressed JA with its three-dimensional soundstaging and midrange richness. “This is a great amplifier,” JA decided. “Highly recommended.” (Vol.28 No.2, Vol.35 No.4, Vol.37 No.6 WWW)

MBL 9011 REFERENCE MONOBLOCK:**\$106,000/PAIR ★**

The 440W (540W at actual clipping into 8 ohms) 9011 measures 19" W by 13" H by 34" D, weighs 223 lbs, is available in several high-gloss finishes with accents in chrome or gold plate, and can be used as a stereo amp or bridged monoblock. Though it lacked some speed and bass punch in absolute terms, the MBL produced a rich midrange and excelled in scale, atmosphere, ease of presentation, and sheer power, said MF. When used as a bridged monoblock, the 9011 must be driven by a balanced signal, cautioned JA, who noted superb measured performance. (Vol.35 No.3 WWW)

MBL 9007 NOBLE LINE MONOBLOCK:**\$42,800/PAIR ★**

The 440W Reference 9007 can be used as either a balanced monoblock or a single-ended stereo amplifier and has provisions for biwiring and biamping. It uses mbl's Direct Push/Pull circuitry design and Isolated Gain Cell technology, and its gleaming black exterior is decorated by a large, gold mbl logo. Sacrificing bloom and suppleness for crystalline transparency and offering tightly focused imaging, shimmering highs, and well-damped bass, the 9007 was one of the most exciting and engaging amplifiers in MF's experience. His recommendation only concerns the 9007 used as monoblock pairs, however. JA was thrilled by the mbl's superb measured performance. Compared to the humongous Musical Fidelity AMS100, the mbl monoblocks were a little more forward in the low treble and offered more ultimate slam, but lacked the AMS100's sweet, forgiving treble, said JA. (Vol.29 No.9; Vol.34 No.9, Vol.37 No.6 WWW)

MBL CORONA C15: \$25,000/PAIR

Although it employs a custom-specified version of the popular Hypex class-D amplifier module, the Corona C15 monoblock, which offers 280W into 8 ohms, 520W into 4 ohms, is, according to its designer, a “Linear Analog Switching Amplifier,” the overall design concept of which entails the use of a linear rather than switch-mode power supply—itsself built around a toroidal transformer with generous mu-metal shielding. (The latter is presumed to contribute to the amp's 48.5-lb weight.) Indeed, in his measurements, JA confirmed that “the C15's transfer function appears to remain relatively consistent with both frequency and output current”; also unusual for a class-D amp was the C15's admirable output-impedance behavior: JA discovered that its low-pass function into loads of 4 and 2 ohms was “very similar to its 8 ohm behavior.” In his listening tests, JA found that the C15's “intrinsic character was all about control, especially the tight control of low frequencies”—a quality that served well the amp's pairing with the somewhat rich-sounding woofer alignment of the Vivid Giya G3 speaker, but less so the Joseph Audio Perspective, with which the MBL sounded clean but lean. Especially when combined with the classic Rogers LS3/5a, JA observed “superb imaging definition and stability” with the good-looking MBL amps. (Vol.37 No.6 WWW)

MUSICAL FIDELITY M6PRX: \$3495 \$\$\$

This dual-mono, class-A/B design is rated to deliver 260Wpc into 8 ohms from four pairs of bipolar output

INTEGRATED AMPLIFIERS & RECEIVERS

transistors per channel, using circuitry based on Musical Fidelity's flagship Titan. Much more modest in size and appearance than the massive Titan, the M6PRX measures 17.5" W by 5" H by 15.5" D, offers balanced and single-ended inputs, has choke-regulated power supplies, and comes in a choice of silver or black faceplate. “This is one of the sweetest-sounding, most fatigue-free solid-state amplifiers I have met up with,” said Sam. His solid-state reference. (Vol.35 No.6)

PARASOUND HALO JC 1 MONOBLOCK:**\$9000/PAIR \$\$\$ ★**

MF heard exactly what this high-power—400Wpc specified, 586W at clipping!—John Curl-designed amp's specs showed: “ultra-wide bandwidth, high-current capability, low, low noise, a high S/N ratio, and a fast slew rate, among many other indicators of outstanding amplifier performance....There was an honesty to the overall tonal and harmonic presentation that transcended technological stereotypes.” MF found the overall sound to be powerful, refined, smooth, organized, dynamic, transparent, and rhythmically supple, if a little on the subtly warm and rich side of the sonic spectrum, but decided that this not at the expense of transient speed and resolution of detail. “Perhaps some listeners will find the JC 1 too refined and perhaps a tad polite, but I didn't.” “Rocks for sure,” says ST, adding that with the amp driving the Triangle Magellans, he found the “bass firmed up, the sound wasn't strained in any way, and there was an overall sense of ease. Dynamic ease. Listening ease. Just ease. Compared to the Halcros, the Parasound JC 1s brought the soundstage forward. Tonally, the Parasounds were magnificent...with no trace of solid-state hardness. And the amps weren't even broken in.” “The Parasound JC 1 is one of the finest high-powered solid-state amps I've heard,” said ST. “Think of it as a 25W class-A amp that does 400W class-A/B when pushed.” Matched with the JC 2 preamp, the JC 1s presented even greater holographic detail and transparency. The Parasound Halo JC 1 traded the Moscode 402Au's snappy, vivid tonality and larger soundstage for “quiet precision,” clarity, and focus, said WP. The Halo JC 1 traded the Aesthetix Atlas's creamy midrange for greater bottom-end heft and top-end extension, said WP. Compared to the Bryston 7B SST2, the Parasound had deeper bass, tighter images, faster transients, and greater low-level resolution and microdynamic delicacy, said MF. A favorite of JA's, who was equally impressed by how the JC 1 performed on the test bench: “This is excellent measured performance. The Halo JC 1 is not only the best amplifier to come from Parasound, it ranks up there with the best high-end heavyweights,” though WP felt that while the Halo JC 1 exhibited grace and delicacy compared with the much more expensive Luxman B-1000f, it lacked some impact, drive, resolution, and detail. *Stereophile's*—and Sam Tellig's—“Joint Amplification Component” for 2003. (Vol.26 Nos.2, 6, & 12, Vol.30 No.12, Vol.31 No.3, Vol.32 No.9, Vol.33 No.1, Vol.34 No.2 WWW)

PASS LABS XA60.5 MONOBLOCK: \$11,000/PAIR

Designed by Nelson Pass, the XA60.5 is rated to deliver 60W into 8 ohms (130W into 8 ohms at clipping) and uses Pass Labs' balanced, single-ended, class-A Supersymmetry circuit topology. Housed in the same case as the XA30.5 stereo amplifier, it has a gray-anodized aluminum front panel with a large, blue-illuminated meter that indicates the output stage's current draw. The interior is dominated by a large Plitron toroidal power transformer flanked by two circuit boards, each carrying 10 pairs of complementary power MOSFETs. Though it lacked some bottom-end authority, the XA60.5 produced a natural, transparent overall sound, with especially beautiful mids and highs, said JA. “It is the best-sounding amplifier I have ever used,” he concluded. (Vol.37 No.1 WWW)

PASS LABS XA30.5: \$5500 ★

This solid-state stereo power amplifier from renowned engineer Nelson Pass is rated to deliver 30Wpc into 8 ohms, but actually delivered clipping-free peaks 6dB higher in power. Its strong yet elegant physical appearance is matched by a simple, symmetric internal design using Pass's Universal Gain Stage and 10 pairs of power MOSFETs along each side of the rugged chassis. Though

LOUDSPEAKER SYSTEMS

it lacked the snap and energy of some larger, more powerful amplifiers, the XA30.5's “lifelike smoothness” and “effortless purity” brought forth the subtle microdynamic nuances of more intimate material. BD: “The XA30.5 is a superb-sounding amplifier. Absolutely, positively, and enthusiastically recommended!” Compared to his reference Pass Labs Aleph 3, the XA30.5 had a leaner midrange but provided a wider soundstage, greater resolution, and better dynamics, EL concluded. Compared to the tubed Rogue M-180 monoblock, the XA30.5 offered a slightly more forward sound that was “rounder, richer, less controlled but more sumptuous” overall, said EL. The XA30.5 traded the Pass INT-150's bass control and wide dynamics for greater purity and texture in the midrange, said EL. (Vol.32 Nos.5 & 8, Vol.33 No.1, Vol.34 No.1 WWW)

SILTECH SAGA: \$75,000

With their unabashedly expensive Structural Amplifier Gain Architecture (SAGA), cable specialists Siltech took a new approach to the two-box power amp: This is neither a pair of monoblocks nor a split between an amplifier and its power supply, but rather a split between a voltage amplifier and a current amplifier. The former, called V1, is a battery-powered tube amp that's switchable between triode and pentode modes, while the latter, P1, is a mains-powered solid-state amp. More unusual is the P1's Apollo Light Drive technology, in which bias current for the output transistors is produced by training high-intensity LEDs on a solar panel: Take that, orthodoxy! According to MF, in comparison with other top amps of his recent experience, “the SAGA sounded as if it had tightened the turnbuckles of tonality, space, and, especially, rhythm ‘n’ pace—the sound was positively exhilarating.” But tightened turnbuckles have their price: “Soundstage depth was somewhat foreshortened, with images between the speakers that normally appear well *behind* the speaker plane presenting themselves closer to a line drawn *between* them.” Still and all, MF concluded, “As soon as I pulled [the SAGA] from my system, I began to miss it.” JA's measurements, spread over two sample sets, revealed “idiosyncratic” performance, prompting the recommendation that “this expensive amplifier must be auditioned with the prospective owner's own speakers. Stated price is for the V1 (voltage amp) plus P1 (current amp). C1 (preamp) costs \$37,500. Entire system costs \$112,500. (Vol.37 No.10 WWW)

SIMAUDIO MOON EVOLUTION 880M**MONOBLOCK: \$45,000/PAIR**

Rated to deliver 800W (1050W at actual clipping), the flagship of Simaudio's Evolution line is a DC-coupled, fully balanced differential design. Its massive power supply is built on two 1.3kVA toroidal transformers and two banks of large capacitors. With a chassis of black-anodized aluminum and a front panel comprising elegantly curved extrusions of brushed aluminum, the 880M measures 18.75" W by 7.5" H by 16.5" D and weighs 92 lbs. Though it wasn't as tonally rich as the VTL S-400 Reference, the Simaudio was extremely well balanced, exhibiting an effortless precision and iron-fisted control that extended from top to bottom, said BD. “The 880M is an excellent design superbly executed, with a professionalism and attention to detail that promise consistently outstanding performance and long, trouble-free life,” he concluded. Must be auditioned fully warmed-up, notes JA. (Vol.36 No.6 WWW)

SOULUTION 710: \$50,000 ★

The 130Wpc Soulution is a dual-mono, dual-differential design housed in a large (21" W by 10.9" H by 18.7" D), clean, matte-gray case. Two massive 1000VA toroidal transformers, solid copper bars carrying rectifiers and capacitors, and a thick, heat-dissipating aluminum baseplate contribute to the amp's 176 lbs. The Soulution offered unparalleled transparency, startling transient clarity, and impressive soundstaging, but lacked some harmonic richness and bass impact. “A technical and sonic achievement not to be denied,” said Mikey. With impressive dynamic range and exceedingly low levels of noise, the Soulution proved one of the best-measuring amplifiers in JA's experience. (Vol.34 No.8 WWW)

THETA DIGITAL PROMETHEUS MONOBLOCK:**\$12,000/PAIR**

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Joining the growing ranks of class-D amplifiers with perfectionist aspirations, the Theta Prometheus combines the Hypex Ncore NC1200 module developed by noted class-D specialist Bruno Putzeys with a linear power supply designed by Theta's own David Reich. (The latter—or at least its enormous toroidal transformer—accounts for the amps' 54.5-lb weight.) Specs include 500Wpc, less than 0.001% THD+N at 1W, and an output impedance said to be extremely low. According to LG, "The most striking things about the Prometheus's sound were its huge dynamic range and bass impact." He also noted that "The Prometheuses projected a broad, detailed, involving, three-dimensional soundstage," and "the midrange response blossomed when my [Quad ESL-989] speakers were driven by the Thetas." LG's conclusion: "My last impression of the Prometheus was the same as my first: It's one of the best-sounding amplifiers I've heard in my listening room." Following the Theta's time on his test bench, JA wrote, "The measured performance of Theta Digital's Prometheus is superb, even for an amplifier with a class-D output stage." (Vol.38 No.3 WWW)

YPSILON AELIUS MONOBLOCK: \$36,000/PAIR

Made in Athens, Greece, the 200W Aelius monoblock power amp measures 16.6" W by 9" H by 16.6" D and weighs 99 lbs. Its audio circuit has only two gain stages and almost no passive components in the signal path. Its single-ended class-A input stage uses either a Siemens C3g or an Electro-Harmonix 6C45PiEH tube. With the C3g tubes in place, the Aeliuses produced a punchy, direct, and insistent sound with "hair-raising" transparency and three-dimensional imaging; with the 6C45PiEH tubes, the Aeliuses had a much warmer, darker, softer overall sound, said MF. On the test bench, the Aelius exhibited measured performance that was in many ways typical of a classic tube design, but with the ability to drive low impedances usually associated with solid-state designs. "Its sound quality will very much depend on the input tube fitted," said JA. (Vol.36 No.4 WWW)

A (TUBE)**AIR TIGHT ATM-1S: \$9500**

Among the audio world's artisanal power amplifiers, only a few have more impressed AD than the Air Tight ATM-1S, the earliest version of which was made by Japan's A&M Limited way back in 1987. Today's ATM-1S uses two EL34 pentode tubes (configured as triodes) per side, for 36Wpc into 8 ohms. It also features solid-state rectification, dual-channel input-level controls, Hashimoto output transformers, a distinctly easy-to-use tube-biasing system, and a high level of build quality (including point-to-point wiring). AD found the ATM-1S to sound enjoyably warm and lush in his low-powered-amp-friendly system, yet with "an appropriate sense of [musical] momentum and drive." He praised the Air Tight for sounding "forceful and present when listened to at lower volumes," while noting that it remained "poised and free from gross colorations" when pushed. In his measurements, JA noted excellent squarewave response with short risetimes—but, on the downside, "drastically higher levels of second and higher harmonics in the left channel," a problem that may have been caused by a bad tube or damage in shipping. AD summed up: "The Air Tight ATM-1S is among the few power amps I'd care to live with." (Vol.37 No.11 WWW)

AUDIO RESEARCH REFERENCE 150: \$13,000

The 150Wpc Reference 150 measures 19" W by 8.75" H by 19.5" D, weighs 75 lbs, offers output taps for 16, 8, and 4 ohm loads, and is available in silver or black. It uses eight matched pairs of KT120 output tubes and four 6H30 driver tubes; the output-stage coupling is a combination of the familiar ultralinear configuration and ARC's patented "partially cathode-coupled" topology. EL: "With its open soundstage, neutral tonal balance, finely textured musical presentation, wide dynamics, and supremely musical feel, the ARC Reference 150 connected me with my music better than almost every other amplifier I've heard." Compared to the Octave RE 290, the Ref 150 lacked some bass control but sounded significantly bigger, clearer, more colorful, and more natural, said EL. A JA favorite. (Vol.35 No.7 WWW; Vol.36 No.1)

INTEGRATED AMPLIFIERS & RECEIVERS

AUDIO RESEARCH REFERENCE 75: \$9000

A half-power version of ARC's Reference 150, the 75Wpc Reference 75 uses four KT120 and two 6H30 tubes. Two front-panel VU meters double as adjustment meters for biasing each of the four KT120s. A relatively simple, straightforward circuit design enables short signal paths; high-quality output transformers offer 4 and 8 ohm taps, with a common ground. BJR noted lightning-fast transient articulation, superb detail resolution, and exceptional bass slam and authority. He bought the review sample. JA noted good measured performance, but advised against using the amp with speakers whose impedance drops significantly below the nominal value of the output-transformer tap. Also see JA's Nola review in Vol.37 No.10. (Vol.36 No.5 WWW)

CONRAD-JOHNSON CLASSIC 60 SE: \$5000 ★

The Classic 60SE uses four Tung-Sol KT120 tubes to deliver 60Wpc into 4 or 8 ohms. Upgrades over the standard Classic 60 include Teflon capacitors in the power supply and main reservoir, Vishay resistors at key points, and Cardas binding posts. With its handsome tube cage in place, the Classic 60SE measures 17.4" W by 6.6" H by 13.4" D and weighs 41 lbs. It combined exceptional dimensionality, pinpoint imaging, and excellent low-level resolution for an overall sound that was "the antithesis of mechanical or contrived," said ST. (Vol.35 No.4)

FI 421A: \$4575 ★

Designed and built by Don Garber in Brooklyn, New York, the Fi 421A is a single-ended, capacitor-coupled, 4Wpc stereo amplifier with a single 421A power tube. It measures just 10" W by 8" H by 10.5" D, weighs 20 lbs, and uses high-quality parts throughout. The Fi sounded "open, clear, compelling, and lovely," and had a knack for reproducing the human voice with outstanding presence and texture, said AD. Class A in special systems only, he cautions. Price increase since review due to new output transformers. One of AD's long-term references. (Vol.35 No.1 WWW)

LAMM ML-3 MONOBLOCK: \$139,490/PAIR

Rated to deliver 32W, Lamm's flagship design is a zero-global-feedback, class-A monoblock with a single-ended-triode output stage and an outboard power supply. It uses one 12AX7, four 6N30P-DRs, and one direct-heated GM70 triode transmitter tube, and its assortment of premium internal components include: military-grade Dale metal-film resistors, Caddock power-film resistors, Cornell-Dubilier and United Chemi-Con electrolytic capacitors, and Electrotube, Elcon, and Roederstein film caps. While the ML3 sounded "lusher and bloomier than life," it produced natural attacks and generous sustain, and had an airy, extended top end, said MF. "Cost and value for money aside, the Lamm Industries ML3 Signature is among a handful of the most pleasurable-sounding amplifiers I've ever heard," he concluded. JA noted good measured performance for an amplifier with a single-ended output stage. (Vol.36 No.9 WWW)

LAMM ML2.2 MONOBLOCK: \$37,290/PAIR

Like its predecessor, the ML2.1, the 18W ML2.2 is a single-ended-triode monoblock power amplifier with a 6C33C indirectly heated power tube. Other tubes include two 6N6P, one 6AK5, one 5651, and one 12AX7. Refinements over the ML2.1 include a new input circuit, new power transformer, five power-supply filter chokes instead of two, revised printed-circuit boards, and upgrades of various parts. Measuring 16" W by 8.25" H by 20.375" D, weighing 81 lbs, and with 14 tubes total (all of which must be installed and adjusted by the user), the ML2.2s require careful setup. Though it lacked the Shindo Haut-Brion's knack for expressing musical force, the Lamm combined superb spatial and temporal performance with rich texture and tone color, said AD. "An extraordinary product," he concluded. (Vol.36 No.4 WWW)

LUXMAN MQ-88: \$8000 ★

The massively built, 40Wpc MQ-88 is a classic push-pull tetrode design based on the KT88 power tube. The amp is hand-wired, point-to-point, and all internal circuit components are suspended from its 15mm-thick top plate. While the MQ-88 lacked some bass control, it sounded much more powerful than the typical 40Wpc amplifier,

producing surprising "oomph factor," said JM. Compared to Ayre's AX-7e, the Luxman lacked resolving power, bass extension, and soundstage clarity, but offered a "delectable midrange." (Vol.35 No.4 WWW)

MCINTOSH MC275: \$5500 \$\$\$ ★

The revived 75Wpc MC275, preserves the look of the original while adding modern innovations. Chimneys are used to cool the tubes by convection, and three circuit boards have been replaced by a single board on which are mounted all components, tube sockets, and power-supply parts. ST: "I heard all the dynamic quality, all that aliveness of the original, plus a level of transparency that brings the MC275 definitely into the 21st century." Sam bought the review sample. The fifth incarnation of the 75Wpc MC275, originally introduced in 1961, retains the first incarnation's classic appearance and its use of four KT88 power-output tubes, three 12AX7 input tubes, and four 12AT7 driver tubes. New are a stainless-steel chassis, balanced inputs, and gold-plated, five-way binding posts. While the MC275's two hefty transformers utilize the same "unity-coupled circuit" invented by McIntosh in 1947, the copper wiring is now insulated in a more durable synthetic material. Though dynamic expression was restricted and bass notes were "a bit muddy" in dense musical passages, the MC275 produced "stunning" soundstage depth and "spooky" intertransient silences, said FK. Meanwhile, the MC275's superb signal/noise ratios led JA to conclude that "Good audio engineering is timeless." Compared to its predecessor, the Limited Edition version of McIntosh's MC275 (\$6500) has beefier binding posts, a more conveniently positioned power switch, and a gold-plated rather than stainless-steel chassis. In addition, a new output-transformer winding process has resulted in wider bandwidth, increased damping factor, and improved linearity. RD noted an ideal top-to-bottom tonal balance and an impressive sense of rhythmic drive, concluding, "The MC275LE is simply a wonderful-sounding amplifier, able to bring out the best from a wide range of loudspeakers." He bought the review sample. (Vol.27 No.7, Vol.33 No.10, Vol.35 No.10 WWW)

MIYAJIMA LABS MODEL 2010 OTL: \$9950

Built into "some of the loveliest steel casework" AD has ever seen, the Model 2010 from Miyajima Laboratory is a stereo OTL amplifier that uses a total of eight 6080WC dual-triode tubes to produce 7Wpc. The fixed-bias 2010 also uses two 12AX7 dual-triodes, two 12AU7 dual-triodes, solid-state rectifiers, and a host of vintage and vintage-style parts, including 18 NOS Black Cat capacitors. Used as a stereo amp, the 2010 impressed AD by sounding "distinctly open and transparent" while lacking "nothing in the way of color or texture." Driving AD's DeVore Orangutan O/96 speakers, the 2010 surpassed the similarly priced and powered Shindo Cortese in top-end sparkle while giving up nothing in terms of "superb touch and force." Adding a second 2010 and strapping the amps for mono—resulting in 16Wpc—delivered what AD described as some of the best sound he has had in his home: "The monoblock experience seems to be the way the Miyajima 2010 was meant to be heard—and I loved it." Full Class A status refers to the use of two 2010s. AD suggests that, even at nearly \$20,000 for a stereo pair, the Miyajima represents very good value. (Vol.37 No.7 WWW)

MUSIC REFERENCE RM-200 MK.II: \$5500 ★

Made in the US, the 100Wpc RM-200 Mk.II has the same basic physical and electrical architecture as the original, but uses better output transformers, adds a capacitor-forming function to extend tube life, and has a revised power supply. The fully balanced design features a high-power, bipolar, solid-state input stage and tubed driver and output stages. It uses two matched pairs of KT88 (standard) or 6550 (optional) output tubes, and a pair of 6BQ7 drivers. Though it lacked the slam and bass authority of more powerful solid-state amps, the RM-200 Mk.II produced airy highs, well-defined bass, and a lush midrange. "When the RM-200 Mk.II was in my system, I wanted for nothing," said MF. JA noted "superb measured performance for a tubed design." Hand-wound output transformers, add \$1000; tube bias balance control, add \$800. (Vol.34 No.12 WWW)

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OCTAVE AUDIO RE 290: \$10,000

Made in Germany, the beautifully built, 75Wpc RE 290 is a push-pull design with class-A/B output stage and adjustable bias for each tube. It uses KT88 or KT120 power tubes, provides a single set of binding posts optimized for a 4 ohm load, and has a switch-activated power-saving mode. The RE 290's well-balanced sound was marked by tight bass, clean mids and highs, and excellent dynamic range, said EL. JA noted impressive measured performance. Compared to the Audio Research Ref 150, the Octave had better-controlled bass but lacked soundstage size, transparency, and tonal color, said EL. The optional Black Box (\$1200) and Super Black Box (\$3500) hook up to the RE 290 via an umbilical cord and respectively increase the capacitance four- or tenfold. (Vol.36 No.1 WWW)

PRIMALUNA DIALOGUE PREMIUM: \$3199

Rated to deliver 25Wpc in Triode mode or 42Wpc in Ultralinear, the extremely versatile DiaLogue Premium is a push-pull design that uses six 12AU7 and four EL34, KT88, or KT120 power tubes. Like other PrimaLuna models, it offers: an LED-based Bad Tube Indicator system for the output tubes; a Power Transformer Protection circuit; an Output Transformer Protection circuit; an AC Offset Killer circuit intended to eliminate hum; and an Adaptive Auto-bias circuit. With every recording AD played, the DiaLogue Premium exhibited an open, clear, and dramatic overall sound, with good tonal balance, realistically weighty bass, and remarkable spatial depth. "A very strongly recommended amplifier and a hell of a good value," AD concluded. Due to the amp's high output impedance and its rising distortion when the load impedance drops below the nominal value of the output-transformer tap, careful matching with the user's loudspeakers is mandatory, cautioned JA. (Vol.37 No.2 WWW)

ROGUE AUDIO M-180 MONOBLOCK:**\$5995/PAIR ★**

Built in the US, the rugged Rogue M-180 delivers 180W in ultralinear mode, and uses four Electro-Harmonix KT90 output tubes. Upgrades over the earlier M-150 include: increased power-supply storage; PRP resistors; Cardas binding posts, input wiring, and RCA jacks; improved input circuitry; HexFred high-speed diodes for the bias supply; and upgraded small-signal tubes. EL was most impressed by the Rogue's ability to maintain articulation and propulsion while providing bass extension and weight. Compared to the Pass Labs XA30.5, the Rogue offered greater low-bass control and had a drier tonal balance. "A great value," sums up EL. See also EL's Rogue Atlas Magnum review in Vol.35 No.4. (Vol.33 No.1 WWW)

SHINDO D'YQUEM MONOBLOCK: \$24,995/PAIR

Shindo's newest mono amp produces up to 18W from a parallel pair of Russian-made Genelex 300B directly heated triode tubes, operated in single-ended, pure class-A mode. Like all Shindo designs, the D'Yquem is made from a careful mix of modern and vintage parts and has beautiful steel casework finished on all surfaces in the company's trademark shade of green. While the D'Yquem shared with other Shindo models an excellent ability to portray music's natural color, texture, impact, and momentum, it added an especially clean and colorful low end, said Art. (Vol.37 No.2 WWW)

SHINDO CORTESE: \$10,995 ★

Like a sax player who can't make himself perform the same solo twice, Ken Shindo brings a certain artistic restlessness to the design of his hand-made tube amplifiers; the 10 Wpc Shindo Cortese—the least expensive of his single-ended amplifiers and the only one built on a stereo chassis—has now been recast, offering the same essence but with slightly different phrasing. The Cortese's input circuit now uses two 6AW8A pentode/triode tubes per channel instead of one, its bias-supply circuit is laid-out somewhat differently, and the Sprague Black Beauty coupling caps have given way to Orange Drops; Allen-Bradley carbon-comp resistors, Siemens F2a indirectly heated output tetrodes, a ginormous Denki power transformer, and Shindo-designed Lundahl output transformers, the single secondaries of which are tailored to high-impedance loads, remain. The sound is punchy and very vivid, with exceptional drive and a bit less gooshiness than its

INTEGRATED AMPLIFIERS & RECEIVERS

immediate predecessor, says AD, who found it a particularly good match with the DeVore O/96 loudspeaker. (Vol.30 No.7 WWW)

SHINDO HAUT-BRION: \$10,995 ★

Like earlier models, the latest Haut-Brion uses two matched pairs of the rare 6L6GAY pentode tube to deliver 25Wpc. The output section is a fixed-bias design, with a regulated bias supply and individual adjustment pots for each of the four output tubes, while the output transformer is a C-core Lundahl model made exclusively for Shindo. Unlike earlier models, the new Haut-Brion has three 6AW8A triode/pentode tubes per channel, uses a pair of Alps 250k ohm potentiometers, and forgoes global feedback. Though it lacked some low-frequency tightness, the new Haut-Brion created an enormous soundstage and showed impressive force. "The amp was the pizzicato king," said AD. (Vol.35 No.2 WWW)

THÖRESS 300B MONOBLOCK:**\$12,995/PAIR**

Provisional rating. See AD's review in this issue.

VTL SIEGFRIED SERIES II REFERENCE:**\$65,000/PAIR**

VTL's Siegfried Series II Reference weighs an abdominal-wall-challenging 200 lbs and uses a dozen 6550 beam tetrode tubes to produce 330W in triode mode or 650W in tetrode mode. High-tech touches abound: A micro-processor delays and ramps up the output section's B+ rail on power-up and enables (reasonably) fast switching between triode and tetrode modes. And rather than use an output transformer with multiple secondaries—an approach that designer Luke Manley considers a sound-sapping compromise—the Siegfried Series II Reference has a tranny optimized for a 5-ohm load, plus a four-setting feedback control to adjust the damping factor as needed. In MF's system, where tetrode was the preferred mode (with damping factor set to Medium, and with occasional forays into triode), the VTL sounded three-dimensional, with "slam not in spades, but in dump trucks full!" MF reveled in the VTLs' midrange creaminess, while acknowledging the slightly greater transparency of the darTZeel NHB-458 monoblocks—and noted that the Siegfried II Reference was "as neutral and uncolored as any tube amp I've listened to." (Vol.37 No.5 WWW)

VTL MB-450 SERIES III SIGNATURE**MONOBLOCK: \$20,000/PAIR ★**

Rated to deliver 425W (tetrode) or 225W (triode) into a 5 ohm load, the MB-450 III uses eight 6550 output tubes, a 12AT7 input tube, and a 12BH7 driver. Revisions to the Series II include a redesigned, fully balanced differential input stage, a lower-impedance output stage, premium Mundorf capacitors, and a shorter, faster, fully balanced negative-feedback loop. While the VTL sounded soft and "tubey" in triode mode, its tetrode performance was marked by an expansive top end, unusually fast attacks, clean decays, and well-controlled bass. "A significant evolutionary advance" over its predecessor, said MF. Because it provides lower distortion into higher impedances, the MB-450 III will sound best with higher-impedance speakers, JA advised. (Vol.34 No.4 WWW)

B**ALLNIC A-5000 DHT MONOBLOCK:****\$19,900/PAIR**

Designed and made in South Korea by Kang Su Park, the Allnic A-5000 DHT, a 10Wpc single-ended monoblock, has three gain stages and an unusual combination of tubes: one Marconi CV1673, one 3A/110B, an Electro-Harmonix 300B, and a 5U4G full-wave rectifier. Construction quality was first-rate, with exceptionally clean solder joints and a solid, attractive case of aluminum alloy. Compared to AD's Shindo Corton-Charlemagne monoblocks, the Allnics had a slightly dark timbral balance with soft highs and short decays, but offered superb scale, drama, and impact. "Distinctive sounding and consistently musical," sums up AD. Along with the second-order distortion typical of single-ended designs, JA's measurements found an impressively wide frequency response, excellent squarewave reproduction, and low output impedances. Almost Class A in some respects. (Vol.35 No.6 WWW)

ANTHEM STATEMENT M1 MONOBLOCK:**\$6998/PAIR**

Despite its relatively slim proportions (19.25" W by 2.25" H by 18.75" D; 20 lbs), the class-D Statement M1 is rated to deliver a whopping 1000W into 8 ohms. An internal heat-pipe cooling system allows multiple M1s to be stacked without the need for cooling fans or heatsink fins. The tidy rear panel holds balanced and single-ended inputs, a balanced-output gain switch, various trigger options, and a single pair of output terminals. The M1's detailed, extended highs were offset by its gritty, congested bass, which unnaturally colored almost every recording KR played. While the Anthem is extraordinarily powerful for its size, JA was very suspicious of the high level of ultrasonic noise in its output. "This will make the Anthem Statement M1's sound quality very system dependent," he cautioned. Be sure to audition with your own components and cables. (Vol.35 No.12 WWW)

LINDELL AMPX: \$1595 \$\$\$

Made in Sweden, the 20Wpc AMPX is a single-ended, dual-mono, class-A power amplifier with balanced XLR inputs. Designed primarily for pro-audio applications, the AMPX measures 18.8" W by 3.5" H by 17.4" D, and its faceplate, machined for rack mounting, is dominated by two large, blue power meters, calibrated to show watts into 8 ohms. Driving Opera's Callas loudspeakers, the AMPX was lively, detailed, and "unfailingly musical, sounding both powerful and revealing," said JM. "A great amp and an amazing bargain," he concluded. As long as it isn't used to drive loudspeakers with impedances that drop significantly below 4 ohms, the Lindell should perform well, concluded JA. (Vol.36 No.12, Vol.37 No.1 WWW)

ROGUE ATLAS MAGNUM: \$1995 ★

Magnum upgrades over the basic Atlas (reviewed by Fred Kaplan in March 2007), include larger, quieter power supplies; polypropylene bypass capacitors; Dale-Vishay resistors in critical spots; sturdier binding posts; gold tube sockets; and the option of KT90 or KT120 output tubes, to increase the specified power rating to 90 or 120Wpc, respectively. EL preferred the fuller, more extended sound of the KT120 output tubes, and appreciated the Atlas Magnum's well-balanced character: "This amplifier had enough dynamic power, enough timbral accuracy, enough soundstage illusion, enough resolution, and enough musicality to turn off the analytical part of my brain and let me simply listen to music." JA was disappointed with the Rogue's lack of high-frequency linearity. Stock Atlas models can be upgraded to Magnum status for \$650. (Original, Vol.30 No.3 WWW; Magnum, Vol.35 No.4 WWW)

SOPHIA ELECTRIC 91-01 300B MONOBLOCK:**\$4999/PAIR**

The 9W (3W at 1% THD) Sophia Electric 91-01 300B is a single-ended power amplifier designed around the 300B directly heated triode tube, operated without negative feedback. The input stage is capacitor-coupled to the signal grid of one of Sophia's own Princess Mesh Plate 300B tubes, and both the mains and output transformers are designed and made in-house. Inside, the Sophia exhibited haphazardly routed point-to-point wiring, some sloppy solder joints, and under-insulated capacitor leads. Though its overall sound was slightly dark and lacked some top-end sparkle and mid-treble openness, the Sophia provided decent color, very good texture, and acceptable senses of touch and force, said AD. JA was concerned about some idiosyncratic aspects of the design. (Vol.36 No.12, Vol.37 No.1 WWW)

Editor's Note: There are no amplifiers listed in Class C and D.

K

AYRE ACOUSTICS MX-R TWENTY, BRICASTI M28, BENCHMARK AHB-2, LUXMAN M600; PASS LABS XA60.8, SHINDO CORTON-CHARLEMAGNE, SIMAUDIO MOON EVOLUTION 860A.

INTEGRATED AMPLIFIERS & RECEIVERS

A

AUDIO RESEARCH VSI60: \$5000 ★

In the 50Wpc VSI60, a passive line stage is combined with a JFET input stage driving one 6H30 driver tube per channel. Each channel's output stage has a matched pair of Svetlana 6550C push-pull tubes with a combination of pentode operation and ARC's "partially cathode-coupled topology." Convenient to use, the VSI60 provides output taps at 4 and 8 ohms, as well as four pairs of voltmeter test points. Though it lacked the ultimate control of more powerful amplifiers, the VSI60 combined a glorious midrange with clean, detailed high frequencies and outstanding low-level dynamic articulation. "In the VSI60, Audio Research has produced an integrated amplifier of staggering quality, versatility, and value," said BJR. Add \$300 for tube cage. (Vol.33 No.9 WWW)

AYRE ACOUSTICS AX-5: \$9950

Ayre's statement integrated amplifier measures 17.25" W by 5" H by 18.75" D, weighs 46 lbs, and has a brushed-aluminum chassis with four balanced and two single-ended inputs. It uses a variable-gain transconductance circuit trickled down from Ayre's top-of-the-line KX-R preamp, a class-A/B diamond-circuit output section, and delivers 125Wpc into 8 ohms. The AX-5 offered a combination of incisive detail, perfect musical timing and momentum, and naturally warm timbral colors, said AD. "It's one of the three best, most musical, most human-sounding solid-state amps I've ever heard," he concluded. "Its wide bandwidth and low distortion are a testament to the intrinsic linearity of the diamond circuit," added JA. In his Follow-Up, Jim Austin expressed admiration for the Ayre's minimalist aesthetic, but had no love for its user interface or loudspeaker connectors—and, as did AD in his full review, criticized the noise made by its volume control. Yet he thought the AX-5 "sounded superb: immediate and full, with much (but not all) of the richness, texture, and corporeality I associate with a good tube amp." About to be replaced by 20th Anniversary edition. (Vol.36 No.8, Vol.37 No.10 WWW)

AYRE ACOUSTICS AX-7E: \$3500 ★

The success of this 60Wpc, solid-state, two-channel, fully balanced, integrated amplifier depended on the associated sources. Used from balanced output to balanced input, "It was brilliant. Amazing. Stirring, even," said AD. However, used as an unbalanced amp, "The AX-7 still sounded good, but its musical performance lacked momentum and, ultimately, excitement." Overall, the Ayre was "colorful, clear, well-textured, and spatially convincing." It seemed sensitive to the type and length of speaker cable AD used, and seemed more sensitive to AC power quality than average. "I strongly recommend the Ayre AX-7 for use [only] in an all-balanced system." The 7e's power supply now includes greater filtering of the AC mains, increased peak current delivery, and filtering of the rectifier switching noise. In addition, the AX-7e's gain stages now use two-stage voltage regulators in place of the earlier version's single-stage regulators. The sound now combined classic Brit-style pacing and tunefulness with near-SET levels of presence and a fine sense of musical flow, a combination that allowed AD to become emotionally involved in the music. "The AX-7e is the best integrated I've ever heard," endorsed WP. "One heck of an involving amplifier," he summed up. Compared to the Luxman MQ-88 power amplifier, the Ayre offered greater bass extension and soundstage control but lacked the Luxman's beguiling midrange, said JM. Original AX-7s can be fully upgraded for \$250–\$350, depending on the age of the unit. (Vol.26 No.10 AX-7; Vol.29 No.1, Vol.31 No.3, AX-7e WWW; see also "The Fifth Element" in Vol.34 No.2 and Vol.35 No.4 WWW)

BEL CANTO C7R: \$2595 \$\$\$

Made in the US, the versatile C7R is a 60Wpc solid-state FM receiver with four S/PDIF digital inputs (two coaxial, two TosLink), two pairs of analog inputs (one phono, one line), one pair of line-level analog outputs, a front-panel headphone jack, and a built-in DAC with USB input capable of handling resolutions up to 24-bit/96kHz. Though it lacked some midrange clarity and high-frequency smoothness, the C7R sounded clear, immediate, and powerful, with excellent dynamics and tight, tuneful bass,

said EL. "I loved the Bel Canto C7R. I recommend it to anyone who wants simplicity and great sound," he concluded. "Overall, the C7R is a well-designed piece of hardware," said JA. (Vol.36 No.3 WWW)

JADIS I-35: \$7995

Made in France, the beautiful I-35 is a tubed, integrated amplifier with five line-level inputs. Though rated to deliver 35Wpc into 1–16 ohms, the I-35 produced just 17W into 8 ohms at 1% THD. It uses five small-signal tubes (three 12AU7s and a pair of 12AX7s) and two pairs of KT120 output tubes run in autobias mode in an Ultralinear circuit, with plates and screen grids for each channel tied to the split-coil primaries of transformers expertly designed and made in-house. Build quality and cosmetics were outstanding, inside and out. Though it lacked the fullness and richness of Art's Shindo separates, the Jadis produced a natural and engaging overall sound, with an excellent sense of momentum and a very good sense of the spatial relationships between different sounds in a stereo recording, said AD. "This is a damn good amp for getting to the essence of music," he concluded. (Vol.37 No.1 WWW)

KONDO OVERTURE: \$33,900

Made in Japan, the 32Wpc Overture uses a class-A, Ultralinear output circuit with minimal (3dB) global feedback, executed with split-primary output transformers custom-wound by Tango. It uses two Electro-Harmonix EL34 output pentodes, one 6072, and one 12BH7 per channel. Build quality was exceptional and marked by silver wiring, handmade capacitors, bespoke resistors, a solid-copper ground plane, and a tuned chassis made from a combination of steel, brass, and aluminum. The Overture has no balance control, remote control, mono switch, headphone amplifier, or phono stage, but does provide four pairs of line-level inputs and a choice of 4- or 8-ohm output sockets. Though it was slightly lean and not quite as colorful as AD's Shindo separates, the Overture produced a natural, compelling overall sound with a well-extended treble and exceptional senses of drive and scale. (Vol.36 No.11 WWW)

LEBEN CS300: \$3395 ★

With its wood side panels, gold-toned faceplate, and large balance and bass-boost knobs, the line-only CS300 has a decidedly old-fashioned look and feel. It uses two pairs of EL84 power pentode tubes running in class-A/B mode to deliver 12Wpc. A rear-panel output control allows the user to switch between transformer secondaries that are optimized for use with speakers with impedances of 4, 6, or 8 ohms. Construction quality was superb throughout. Though it lacked the color, presence, internote silence, and sense of flow of AD's Shindo separates, the Leben distinguished itself as a punchy and realistically textured amp with an especially deep, tight bottom end. It measured "about as well as can be expected from its retro design," commented JA. (Vol.34 No.11 WWW)

LFD NCSE: \$6795

A bigger and more powerful version of LFD's excellent Mk.IV LE, the NCSE Mk.II measures 17.2" W by 3.25" H by 15.7" D, and is rated to deliver 70Wpc. The basic circuit remains the same, with a pair of MOSFET output transformers for each channel. The NCSE Mk.II retained the smaller model's speed, transparency, harmonic accuracy, and illuminated-from-within quality, but added improved bass and dynamics, said ST. "If you like the Mk.IV LE but feel you're running out of power, the NCSE Mk.II would be the better choice, particularly if you're driving bigger speakers in a bigger room," he advised. (Vol.36 No.11)

LFD LE V: \$4495

Dr. Richard Bews, proprietor of England's LFD electronics, has once again upgraded his and Dr. Malcolm O. Hawkford's original integrated amplifier, the 65Wpc LE (née Mistral): a perennial ST favorite, owing to its complete lack of convenience or "luxury" features that degrade sound and add expense. To those ends, all iterations of LFD's solid-state amp have lacked balance and tone controls, headphone jacks, extra sets of speaker outputs, digital displays, and, especially, remote controls. The LE, which Dr. Bews builds in small batches, provides five line-level inputs (but no phono section), and is made with only the highest-quality parts, some vintage (NOS), some custom-

made. According to ST, the new LE V—whose improvements all seem to arise from a combination of sturdier casework and more refined parts—"is a showstopper. I mean that literally. I didn't want to write; I wanted to listen." Compared to the LE IV, which ST owns and loves, the LE V represents "a substantial improvement. Everything just fit into place: harmonics, timing, resolution." Quoth he: "Buy your LFD LE V today." (Vol.37 No.7)

PASS LABS INT-150: \$7150 ★

The push-pull, class-A/B INT-150 is rated to deliver 150Wpc (191Wpc at clipping), and has a high-quality volume control and five inputs: two XLR/RCA and three RCA-only. It uses Pass's Super-Symmetry Circuit, previously featured in all X-series models, to naturally eliminate distortions from the audio signal. Though it produced a slightly forward midrange and top end, the INT-150 combined wide dynamic range with great rhythmic drive, a broad soundstage, and tight, tuneful bass, said EL, who recommended high Class B. Measured performance was excellent in most respects, said JA, who feels low Class A is the appropriate rating. (Vol.34 No.1 WWW)

PRIMALUNA DIALOGUE PREMIUM HP: \$4399

PrimaLuna's Dialogue Premium HP employs a total of eight power tubes—EL34s are standard, although the user can substitute a variety of other power pentodes—to produce 40Wpc in triode mode or 70Wpc in Ultralinear mode. (On-the-fly switching between modes can be performed with the Dialogue Premium HP's remote handset.) Additional features include a newly designed, six-tube front end; the "highest-end" implementation yet of PrimaLuna's Adaptive AutoBias circuit; and an all-tube headphone amp. RD, a fan of the company's earlier Prologue Premium, found that the new amp provided higher power with no loss of finesse, and declared, "PrimaLuna had taken a major step forward in amplifier performance." JA's measurements indicated that "PrimaLuna's output transformers are of excellent quality." Distortion wasn't the lowest JA has seen, but, "fortunately, the distortion is heavily second-harmonic in nature in both modes, even at low frequencies." He concluded that, "overall, the PrimaLuna Dialogue Premium HP measures well for a design using push-pull pairs of EL34 tubes." RD summed up: "\$4199 for an integrated amp of the Dialogue Premium HP's level of performance represents excellent value." (Vol.37 No.12 WWW)

PRIMALUNA DIALOGUE PREMIUM: \$3399

PrimaLuna's top-of-the-line integrated amplifier is rated to deliver 36Wpc with its stock EL34 output tubes or 43Wpc with optional KT120s. It uses PrimaLuna's Adaptive AutoBias feature for easy swapping of output tubes, and has a bad-tube indicator, power-transformer protection, and output-transformer protection circuitry. The Dialogue Premium was extremely quiet and sounded bigger than its power rating suggested, with a rich midrange and an excellent sense of timing, said ST. "The Dialogue Premium will be a dream come true for anyone who has a closetful of output tubes," he concluded. (Vol.36 No.6)

PRIMALUNA PROLOGUE PREMIUM: \$3399

Designed in Holland and made in China, the solidly built Prologue Premium is rated to deliver 35Wpc with EL34 tubes or 40Wpc with KT88s. It has a heavy-gauge, ventilated case with a lustrous five-coat finish, features point-to-point wiring, and offers five pairs of RCA input jacks, a Home Theater bypass, and connections for speaker loads of 4 and 8 ohms. Though it lacked the three-dimensional imaging, detailed highs, and extended bass of more expensive amplifiers, the Prologue Premium produced a natural, inviting midrange and performed well with a wide variety of speakers. "The PrimaLuna Prologue Premium offers outstanding sound quality at a very reasonable price," said RD. JA noted respectable measured performance for a classic tube design. (Vol.35 No.6 WWW)

SIMAUDIO MOON EVOLUTION 700i: \$14,000 ★

Robustly built of thick, ultrarigid aluminum, the 700i is a fully differential dual-mono design rated to deliver 175Wpc (190Wpc at actual clipping), running in class-A up to 5W and in class-A/B thereafter. Its output stages are powered by six bipolar transistors per channel for a wide bandwidth and low noise floor, while its "zero global

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feedback” design works to boost the speed of the signal response and eliminate intermodulation distortion. Though it couldn’t match the Krell FBI’s transient speed or deep-bass extension, the 700i had a full-blooded, dynamic, seamless sound marked by vivid tonal colors, harmonic integrity, and a strong sense of rhythm. With the 700i, “I found myself drawn deeper into the music,” said FK. (Vol.34 No.3 WWW)

T+A POWER PLANT BALANCED: \$3300 ★

The 140Wpc Power Plant looks almost identical to T+A’s Music Player, and the two comprise a fully functional audio system in a single stack. Connection via a supplied RJ-12 cable coordinates the functions of the MP and PP, and allows the pair to be operated by a single remote. The PP’s switch-mode output stages were developed in-house, and combine MOSFET transistors with high-energy driver modules. JI noted a “dynamic-sounding amplifier section that exhibited ample and well-controlled bass along with a smooth, detailed top end.” Surprisingly robust and detailed sounding amp for such a small cool-running package, he concludes. (Vol.32 No.8, Vol.35 No.9 WWW)

UNISON RESEARCH S6: \$5395

Each channel of the Italian-made S6 uses three EL34 power pentode tubes in a class-A, single-ended, triple-parallel configuration to deliver 35Wpc into 8 ohms. Its distinctive chassis is longitudinally divided into three portions: a central raised center that houses the iron-core transformers is flanked by identical lower sections that hold the tube sockets, bias meters, and bias-adjustment controls. Compared with the Ars-Sonum Filarmonia SE, the S6 was more forceful but gave up nothing in finesse; when partnered with the Opera Callas loudspeakers, the S6 was fatigue-free, with surprising dynamics and bass, said JM. (Vol.36 No.8 WWW)

B

CAMBRIDGE AUDIO AZUR 851A: \$1900

First cousin to the Cambridge Azur 851D DAC, the Azur 851A integrated amplifier provides 120Wpc into 8 ohms, two balanced inputs (XLR), eight unbalanced line-level inputs (RCA), and the rare luxury of bass and treble tone controls. HR wrote that he could best describe the sound of the Azur 851A as “relaxed and enjoyably colorful, in a class-A triode sort of way. It sounded more naturally toned and weighty than my Creek 3330 or my Line Magnetic LM-518IA, and showed none of that off-putting grayness or brittleness often heard in low-priced, high-powered amps.” In his measurements, JA discovered that the amp’s right-channel performance was not in keeping with that of the left channel—although he suggested that the right channel’s relative shortcomings were inaudible. His conclusion: “Assuming that the less-good performance of its right channel was a sample-specific fault, Cambridge Audio’s Azur 851A is a well-built amplifier that offers a lot of power with very low distortion at an affordable price.” HR’s last word: “a versatile and extraordinarily musical cornerstone on which to build a truly enjoyable high-end system that can play all types of music with righteous aplomb for little cost.” (Vol.38 No.2 WWW)

CAYIN SP-10A: \$2195 ★

With its brushed aluminum faceplate and cabinet of gorgeous cherrywood (walnut and piano lacquer are also available), the 38Wpc SP-10A has a decidedly old-fashioned appearance. It uses four 6L6GC output tubes, two 12AU7 driver tubes, and one 12AX7 input tube; has four line-level inputs; and offers both 4 and 8 ohm output transformer taps. Though it lacked top-end sparkle and ran out of gas at high volumes, the Cayin offered a lush, natural midrange with outstanding resolution of inner detail and ambience, said BJR. JA’s measurements uncovered a “curious instability” and lack of distortion-free power from the amp’s 4 ohm tap. (Vol.35 No.4 WWW)

CREEK EVOLUTION 50A: \$1195 \$\$\$

Creek’s new entry-level model is a class-A/B design claimed to deliver 55Wpc into 8 ohms. It offers four single-ended and one balanced input, one of which can accommodate one of three MM or MC plug-in phono boards. The clean front panel has input-selector and Volume knobs, Balance and Tone controls, and a large display.

The Creek produced an uncolored midrange, impressive bass impact, and excellent resolution of high-frequency detail, delicacy, and air, said BJR. “An involving, flexible, and good-sounding piece of electronics,” he concluded, adding that it “sounds more powerful than its rating would imply.” “Considering its affordable price, Creek’s Evolution 50A measures fundamentally well,” said JA, though he points out that its output stage is underbiased. (Vol.36 No.8 WWW)

CROFT PHONO INTEGRATED: \$1895 \$\$\$

Croft’s 45Wpc Phono Integrated combines in a single package the company’s Micro 25 preamplifier and Series 7 power amplifier to create a hybrid integrated in which line- and moving-magnet-compatible phono-stage gain is provided by ECC83 vacuum tubes, output power by transistors. In addition to its phono input, the Croft has three analog line inputs, but offers no remote control, digital inputs, headphone jack, or upgrade paths for USB connectivity. Apart from a small circuit board containing the bipolar timer and relays, the Phono Integrated is hand-wired, point to point, with neatly made solder joints and Bakelite terminal strips. AD liked the Croft’s dual-mono volume controls, SM not so much. They agreed, however, that the Croft’s sound was extraordinary: smooth, coherent, open, naturally detailed, forceful, physical, and dynamic, with a great sense of space and an expert ability to drive a beat forward. “If I were a designer or builder, this is how I would do the thing. If I were buying in this price range, this is the one I’d choose,” raved AD. On JA’s test bench, however, the Croft exhibited a nonflat RIAA response and high levels of harmonic and intermodulation distortion. According to ST, “the sound of the Phono Integrated was musical in a way that very few hi-fi components are.” Apart from noting this model’s 1970s-style cosmetics (“A pox on cosmetics!”), minimalist conveniences (“A pox on convenience!”), and slightly plump bass, ST declared the Croft “one of the best integrated amplifiers I have ever heard.” (Vol.36 No.10, Vol.37 No.5 WWW)

HARMAN/KARDON HK 990: \$2599

The gorgeous, versatile, 150Wpc HK 990 is a two-channel integrated amplifier with analog and digital inputs, tone controls, bass management, and system equalization. Line-level analog inputs include six pairs single-ended, one pair balanced, a processor HT bypass, and two subwoofer; digital inputs include two optical and two coaxial. In addition, there are moving-magnet and moving-coil phono inputs, two subwoofer outputs, two coaxial outputs, and a front-panel headphone jack. Its Analog Devices AD1955 DAC chip handles resolutions up to 24-bit/96kHz. Though it was less transparent than the Parasound Halo JC 2 preamp, the HK 990 offered impressive performance with both analog and digital sources, exhibiting taut bass, clean mids, and outstanding power and control. “The HK 990 should be on every audiophile’s shopping list,” said KR, adding that it’s “a harbinger of the future of integrated amplifiers.” JA noted that the H/K’s measured performance was not compromised by its wealth of versatile features. “I am impressed,” he said. (Vol.34 No.12 WWW)

MANLEY LABS STINGRAY ITUBE: \$6000 ★

MANLEY LABS STINGRAY II: \$5650 ★

Direct descendent of the acclaimed Stingray (reviewed by CS in December 1999), the rugged-looking, gorgeously constructed Stingray iTube is built around eight EL84 output tubes, rated to deliver 32Wpc in ultralinear mode and 18Wpc in triode mode. It offers three single-ended inputs, a certified iPod dock, a subwoofer output, and a 1/4" headphone jack. An IR/RF remote control provides full control of the amp, as well as the track functions of a docked iPod. After about 250 hours of break-in, the iTube exhibited a sound marked by “elegance, subtlety, and charm.” Though it lacked some body and color, and sometimes struggled at high volumes, the iTube had a grainless, extended treble and an overall sound that was “engaging and relaxing,” said EL. Though it lacked the balanced overall sound of the Simaudio Moon i3.3, the iTube “had a midrange to die for, and it effortlessly hung images in the air,” summed up EL. The Stingray II is identical to the Stingray iTube, but without the iPod dock. Though it lacked some bass control and low-level resolution, the Stingray II offered a surprisingly

dynamic and expansive sound with a relaxed, romantic color, said ST. (Vol.22 No.12, original version, WWW; Vol.33 Nos.3, 9, & 11. Stingray II WWW)

NAIM NAIT 5SI: \$1895

Introduced 30 years after Naim Audio’s original Nait, the new Nait 5si is a 60Wpc (into 8 ohms) integrated amp with a built-in headphone amp, and with inputs for four line-level sources—but no phono preamp. Inputs are selected with soft-touch buttons, and all are addressed with RCA plugs, while two of those are also equipped with DIN inputs: Naim’s traditional preference. HR enjoyed the Nait 5si for tracking complex rhythms with perfection, and for keeping even the most microscopic pitch intervals “in good focus.” The Nait 5si lacked color and spaciousness compared to HR’s more expensive tubed integrated, but “made it easy to hear—*watch*—[the music’s] rhythms. Forward momentum was spellbinding: The Nait directed my attention toward how the players attacked their instruments.” Apart from inverted signal polarity on the headphone output, JA found nothing untoward in his measurements—noting, in fact, that the Nait developed more output power than specified. HR summed up: “The Nait 5si is a world-class integrated amplifier that delivers more audio precision and musical enjoyment than any self-respecting anti-imperialist should ever need.” (Vol.37 No.10 WWW)

OCTAVE AUDIO V 40 SE: \$5300

The entry-level V40 SE Line, from Germany’s Octave Audio, is an integrated amplifier with an active line-only preamp section and—despite its model designation—a push-pull output section, using two KT88 pentode tubes per side to produce 40Wpc. (A wide variety of similar pentodes can be used instead, but not all will produce the same amount of power.) The output tubes are operated as true pentodes, and the design entails 10dB of global feedback; output-tube bias is user-adjustable via system of which AD remarked, “I have never encountered a surer, safer, less ambiguous, or altogether better means of checking and adjusting tube bias.” He was similarly impressed by the Octave’s musical performance, describing its ability to portray musical timing and momentum as “superb.” AD also enjoyed the V40 SE’s “up-front” sound and “better-than-average sense of scale,” also noting that while it didn’t sound bright, it had sufficiently extended trebles that “reasonable care should be taken in the setup and adjusting of partnering gear.” An easy-to-install power-supply enhancement, the Octave Black Box (\$1200), made an audible improvement, but shouldn’t be considered mandatory. JA noted that the V40 SE “measured as I would expect from a traditional design that uses a pair of KT88 output tubes for each channel,” and praised the amp’s “impressively high standard” of construction. (Vol.37 No.8 WWW)

PEACHTREE AUDIO NOVA125SE: \$1499

The handsome, remote-controlled nova125 combines a 125Wpc amplifier, preamplifier with tubed buffer stage, headphone amp, and asynchronous USB DAC capable of handling resolutions up to 24-bit/192kHz. It offers three S/PDIF inputs, one analog input, and a preamp output. Though it lacked some resolution, the Peachtree had a slightly warm and soft overall sound, with excellent tonality, well-defined bass, and smooth highs, said ST. “Peachtree Audio has delivered a plum,” he concluded. Add \$100 for Cherry or Rosewood finish. (Vol.36 No.1 WWW)

ROGERS HIGH FIDELITY EHF-100: \$7000

Made in the US by former NASA engineer Roger Gibboni, the EHF-100 is rated to deliver 65Wpc (JA measured 35Wpc) into 8 ohms; offers four pairs of line-level inputs; and uses two EF86 miniature pentode, two 12AX7 triode, and four KT88 power tubes. Fit and finish were excellent. Though not as nuanced, colorful, or dramatic as AD’s reference Shindo separates, the EHF-100 distinguished itself as a tight, punchy-sounding amplifier with loads of natural detail, a very good sense of momentum, and an excellent sense of space. Despite differences in the noise floor between its two channels, the EHF-100 measured well “for a classic design,” said JA. (Vol.35 No.11 WWW)

ROGUE SPHINX: \$1295

The Sphinx is that rarity in contemporary audio: a US-



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made integrated amplifier with a tubed (12AU7) line stage, a MM-appropriate phono stage, and a headphone jack, all for less than the price of a round-trip ticket to Paris—and Rogue Audio doesn't even make you buy their remote handset (\$100). Using Bruno Putzeys's Hypex class-D power modules in tandem with a nonswitching power supply, this hybrid integrated delivers 100Wpc into 8 ohms or 200Wpc into 4 ohms. HR enjoyed his time with the Sphinx, noting its "greater scale and bass force" than his Creek 4330 integrated, and praising its line stage as perhaps "the best of [its] many good features: Everything I played was enjoyably detailed, transparent, and spacious." HR's verdict: "Judging by my experiences with the Sphinx, Rogue's owner and designer, Mark O'Brien, has taken this stigmatized, lower-class mode of operation to a new, more refined level." According to JA, apart from a bit of ultrasonic noise in its output, the Sphinx's amplifier section avoided most of the usual class-D pitfalls, and he particularly praised the MM phono section. (Vol.37 No.8 WWW)

ROKSAN KANDY K2 BT: \$1900

This solid-state integrated amp, descended from the original Roksan Kandy K2, is notable for offering both an MM phono stage and a Bluetooth input alongside its three line-level inputs. The Kandy K2 BT, which also provides a pair of preamp-out jacks and a bypass input for AV fans, delivers 140Wpc into 8 ohms and 250Wpc into 4 ohms. In HR's system, "The K2 BT showed consistently good tone and scale, but music often felt a tad soft and round—especially at the edges of string plucks and keystrokes." That said, HR declared that "[the Roksan's] phono stage was the best I've heard in a moderately priced integrated—it played LPs in living color." As for Bluetooth, HR was underwhelmed, noting that "the detail, life and naturalness exceeded my expectations but I was disappointed by the amount of low-level fuzz and blur I was noticing." He found that Bluetooth music sounded best when playback levels were kept in check. In his measurements, JA echoed that last sentiment—"if you use the Roksan's BT input, keep your source's volume control down"—and commented that the K2 BT's frequency response "depends to a larger extent than usual on its volume-control setting." (Vol.37 No.11 WWW)

SWISSONOR V.S.O.P.: \$5475

The elegant, 8Wpc V.S.O.P. is a push-pull design with three line-level inputs. It uses a pair of ECC81 tubes for the pre-amp stage, and two pairs of 6V6 power tubes. The V.S.O.P. lacked some of the speed and articulation of the Unison Research Simply Italy, but nevertheless offered a smooth, coherent overall sound, said ST. "The V.S.O.P. is an amplifier to hear if you get the chance, especially with high-sensitivity speakers in a small listening space," he concluded. Options: moving-magnet phono stage, add \$500; high-output moving-coil phono stage, add \$750. (Vol.36 No.2)

UNISON RESEARCH SIMPLY ITALY: \$2695 ★

The solidly built Simply Italy uses an ECC82 driver tube and an EL34B output tube to deliver 12Wpc. It measures just 10" W by 7.5" H by 15.5" D and offers four line-level inputs, a tape loop, and a single set of outputs optimized for 4–8 ohm speakers. Solid-wood inlays around the hefty, stainless-steel volume and selector knobs help damp vibrations. Fit and finish were outstanding. Though it lacked the dimensionality and expansiveness of larger Unison Research amplifiers, the Simply Italy had a confident, solid sound with surprisingly tight bass, said ST. "My little bambino." He sums up. "Clear, crisp sound, tight bass for all of its 12 watts." ST thinks there may be no better amp for small-group jazz. The Simply Italy was an especially good partner for DeVore Fidelity's Orangan O/93 loudspeakers, said ST. Replacing the amp's stock EL34Bs with Genelex KT77 output tubes resulted in an airier sound with less robust bass and improved top-end extension. (Vol.35 No.8; Vol.37 No.1)

C**ARCAM FMJ A19: \$999 \$\$\$**

Rated to deliver 50Wpc into 8 ohms, the FMJ A19 is Arcam's most affordable integrated amplifier. It provides six line-level inputs, tape and preamplifier outputs, a moving-

magnet phono stage, and two front-panel mini-jacks: one for driving headphones, the other for connecting an iPod. While the A19 gets its power from a hefty toroidal transformer, a second internal power supply can deliver a direct, isolated, and regulated 6V to two of Arcam's r-series products, such as the rBlink Bluetooth DAC that ST enjoyed. Build quality was excellent, setup simple, operation flawless. Though it lacked some smoothness and drama, the A19 combined a sweet treble, a clean midrange, and well-defined bass for a sound that was fun, involving, and never fatiguing, said SM. JA noted excellent measured performance, but warned that the A19 shouldn't be used to drive at high levels loads much below 6 ohms. Borderline Class B. (Vol.37 No.1 WWW)

AVM INSPIRATION C8: \$4190

Made in Germany, the handsome AVM Inspiration C8 is a solid-state CD receiver with a 150Wpc class-D output stage, a phono stage, and digital inputs and outputs, including a USB input limited to 16-bit/48kHz resolution. Partnered with the Canalis Anima speakers, the C8 produced a neutral, powerful overall sound, said JM. However, with the speakers placed too low, JM noted an overabundance of high-frequency detail. Expensive for the sound quality on offer. (Vol.36 No.2 WWW)

MUSIC HALL A15.3: \$549

Rated at 50Wpc into 8 ohms or 75Wpc into 4 ohms, the Music Hall a15.3 is a full-size (16.9" W by 3.1" H by 13.2" D) integrated amplifier that includes a MM phono input, mini-jack and RCA line-level inputs, and a front-panel headphone jack. SM admired the a15.3's "high level of fit and finish," adding that the amp performed without flaw in his system. Using the a15.3 with Music Hall's companion c15.3 CD player–DAC and comparing it with NAD's C 515BEE CD player and C 316BEE integrated amplifier, SM found that the a15.3 sounded "more open and airy, and produced a wider, deeper soundstage with beautifully focused images," although it "lacked the NADs' intangible smoothness and musical flow." Among the inputs offered, none impressed SM more than the a15.3's phono stage, which "sounded superb—quiet, dynamic, and emotionally compelling." (Vol.37 No.6 WWW)

NAD D 3020: \$499 \$\$\$

Launched to celebrate NAD's 40th anniversary, the 30Wpc D 3020 takes only its name from the company's iconic 3020 integrated amplifier; every other aspect of the design has been thoroughly modernized. It uses a switch-mode power supply, lacks a phono stage, and has only a single analog input, but includes a front-panel headphone minijack; an optional 6dB bass boost; a subwoofer output; coaxial, optical, and 24-bit/96kHz-capable asynchronous USB inputs; and uses an audio-optimized aptX codec for Bluetooth streaming. Weighing just 3 lbs and measuring an unusual 7 3/8" H by 2 5/16" W by 8 5/8" D, the D 3020 can be placed horizontally, like a traditional component, or stood upright, like a modem or hard drive. Uncommonly sensual for a hi-fi product, it has a large, textured volume knob; soft, smooth side panels; and a touchscreen that occupies its entire front panel and extends through one entire side panel. The sound from every input was warm, present, and naturally detailed; even low-quality MP3s streamed wirelessly via Bluetooth were engaging, said SM. "Right now, NAD's D 3020 is the best bargain in all of hi-fi," added ST. Borderline Class B. (Vol.36 Nos. 11 & 12 WWW)

NAD C 316BEE: \$379 \$\$\$ ★

Descendant of NAD's famed 3020 integrated amplifier, the 40Wpc C 316BEE uses a new variant of the PowerDrive technology found in NAD's Master Series components, said to maximize the short-term dynamic power sent to loudspeakers. It has five inputs, a single set of user-friendly binding posts for easy connections, defeatable tone controls, a headphone jack, and an iPod mini-jack. The NAD matched power with grace, providing a rich, forceful overall presentation and an impressive ability to follow complex musical passages and make clear, truthful distinctions among musical instruments. Compared to the JoLida FX10, the NAD produced a far more compelling listening experience, with faster attacks, longer decays, and a wider soundstage, said SM. (Vol.34 No.7 WWW)

OUTLAW AUDIO RR2150: \$699 \$\$\$ ★

This 100Wpc, two-channel receiver showcases stylish, deco-like looks and a full range of features that include line, iPod, phono, and USB digital inputs, tape and processor loops, tone controls, headphone output, speaker equalization, bass management, and a mono line-level subwoofer output. JA was "astonished" to discover what the bargain-basement-priced RR2150 offered, both on the test bench and in the listening room. The RR2150's self-explanatory setup, versatility and convenience, and open, focused, and well-organized overall sound (though somewhat opaque and not fully fleshed out) make it "a great intro to hi-fi for a younger generation," said MF. Problems with production led to delivery delays through July 2006, but the situation is now resolved. Current production samples (made in a different factory) offer the same excellent measured performance as the original, but the RR2150's USB digital input, marred by limited resolution and high jitter, should be regarded as being for convenience only, advised JA. (Vol.29 No.3, Vol.31 No.1 WWW)

REGA BRIO-R: \$995 ★

Minimalist in design and appearance, the 50Wpc Brio-R measures just 8.5" W by 3.25" H by 13" D and, like the Rega DAC, is housed in an attractive aluminum-and-steel case with a reflective front panel. It offers five line-level RCA inputs and one phono input. Though it lacked the definition, detail, focus, and frequency extension of the much more expensive LFD LE IV, the Brio-R delivered a relaxed, nonfatiguing sound with tight, full bass, said ST. "The Brio-R showed the excellence that's possible when a manufacturer aspires to deliver less," he said, adding that it includes "a very good moving-magnet phono stage, enough to satisfy the less fussy among us. Yes, it's 'umble eye-fye, but very well done," ST sums up. (Vol.34 No.12)

D**LEPAI LP7498E: \$99.90**

Rated to deliver 100Wpc via its TriPath class-D output stage, the Lepai is a small (4.5" W by 1.25" H by 7" D) integrated amplifier with one pair of RCA inputs, two pairs of speaker binding posts, and a dedicated 36V DC power supply. It uses STMicroelectronics' TDA7498 class-D module and supports Bluetooth streaming but not aptX. CDs played through the Lepai's RCA input sounded big, bold, and emotionally compelling, with a natural midrange, sweet highs, good bass weight, and well-focused images, but digital files streamed via Bluetooth sounded gritty, compressed, and murky, said SM. Sold by Parts Express with a 45-day money-back guarantee and lifetime service warranty. (Vol.37 No.2 WWW)

K**HEGEL H160, PS AUDIO SPROUT, ONKYO TX-8020.**

DELETIONS

Allnic T-1500 300B, Audio Note Jinro, not auditioned in too long a time to be sure of rating; Devialet D-Premier discontinued.

LOUDSPEAKER SYSTEMS

Editor's Note: Class A "Loudspeakers" are sufficiently idiosyncratic and differ enough from one another that prospective customers should read *Stereophile's* original reviews in their entirety for descriptions of the sounds. I have therefore just listed every system or combination that at least one of *Stereophile's* reviewers feels, as a result of his or her experience, approaches the current state of the art in loudspeaker design. (Note that, to be eligible for inclusion in Class A, the system *must* be full-range—ie, feature bass extension to 20Hz. It must also be capable of reaching realistic sound-pressure levels without any feeling of strain.)

For those unconcerned about the last few hertz of low-bass extension, we have created "Classes A, B, and C (Restricted Extreme LF)" for those speakers that are state of the art in every other way. Candidates for inclusion in

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this class must still reach down to at least 40Hz, below the lowest notes of the four-string double-bass and bass guitar.

In addition, such has been the recent progress in loudspeaker design at a more affordable level that we have an extra class: E, for "Entry Level." Someone once asked us why *Stereophile* bothers to review inexpensive loudspeakers at all: In effect, aren't we insulting our readership by recommending that they buy inexpensive models? Remember: It's possible to put together a musically satisfying, truly high-end system around any of our Class D and E recommendations. That's why they're listed—and why you should consider buying them.

A (FULL-RANGE)

B&W 800 DIAMOND: \$24,000/PAIR

(Vol.34 No.5 WWW)

MBL RADIALSTRAHLER 101E MK.II:

\$70,500/PAIR ★

(Vol.35 No.4 WWW)

REVEL ULTIMA SALON2: \$21,998/PAIR ★

One of *Stereophile*'s "Joint Loudspeakers of the Year" for 2008. (Vol.31 No.6, Vol.32 No.3 WWW)

REVEL ULTIMA STUDIO2: \$15,998/PAIR \$\$\$ ★

(Vol.31 No.3, Vol.32 No.12 WWW)

SONUS FABER AMATI FUTURA: \$36,000/PAIR ★

(Vol.35 No.3 WWW)

SONY SS-AR1: \$27,000/PAIR ★

(Vol.34 No.7 WWW)

TAD EVOLUTION ONE E1 LOUDSPEAKER:

\$29,800/PAIR

(Vol.36 No.7 WWW)

VANDERSTEEN MODEL SEVEN: \$52,000/PAIR ★

About to be replaced by Mk.II version. (Vol.33 No.3 WWW)

VIVID G1 GIYA: \$67,990/PAIR ★

(Vol.33 No.7 WWW)

VIVID G3 GIYA: \$39,990/PAIR

(Vol.37 No.4 WWW)

WILSON AUDIO SPECIALTIES ALEXANDRIA XLF:

\$200,000/PAIR

(Vol.36 No.1 WWW)

WILSON AUDIO SPECIALTIES ALEXIA:

\$48,500/PAIR

(Vol.36 No.12 WWW)

YG ACOUSTICS SONJA 1.3: \$106,800/PAIR

(Vol.36 No.7 WWW)

A (RESTRICTED EXTREME LF)

AERIAL MODEL 7T: \$9995/PAIR ★

This compact (44.5" H by 9.7" W by 15.3" D), three-way floorstander uses a 1" soft ring-radiator tweeter with dual magnets and a machined waveguide; a 5.9" papyrus-blend midrange cone with a 1.25" voice-coil, dual magnets, and cast magnesium frame; and two 7.1" biaminate-cone woofers with 1.5" voice-coils and cast magnesium frames. The 7T provided a well-balanced sound overall, with a stable soundstage, pinpoint imaging, detailed and transparent highs, a gorgeous midrange, and neutrally balanced bass. "The 7T is so good that it should provide any listener with joyful musical communication," KR concluded. JA found excellent measured performance. (Vol.35 No.3 WWW)

ATC SCM19 V.2: \$4299/PAIR

(STANDS NECESSARY)

Designed around a sealed enclosure with curved side panels, a lute-shaped cross section, and a volume of 19 liters—hence the model number—ATC's SCM19 v.2 is a two-way loudspeaker with a 1" non-hemispherical soft-dome tweeter and a 6" woofer, the 3" dustcap of which is said to function as a midrange dome; both drivers are of ATC's own design and manufacture. The SCM19 v.2's cabinet is only 17.1" high, yet weighs a hefty 39 lbs; its frequency response is specified as 54Hz–22kHz, –6dB, its nominal impedance as 8 ohms, and its sensitivity as 85dB/W/m. Comparing the ATC to a similarly small, sealed-box loudspeaker of some renown, the classic BBC LS3/5a, JM found that the SCM19 v.2 "exhibited an arresting increase in resolving power." Similarly, he wrote that the SCM19 "decisively strode ahead of" ATC's less

expensive SCM7 v.3 in resolution and bass extension, noting that while the SCM7 "had no distortion that I was aware of, the [low-frequency] driver in the SCM19 was so much more revealing that it was not funny." JM summed up: "The SCM19 might be all the speaker most people will ever need. Well done. Highly recommended." (Vol.37 No.6 WWW)

DEVORE FIDELITY ORANGUTAN O/96:

\$12,000/PAIR (STANDS INCLUDED)

"Handmade in Brooklyn, New York, the O/96 is a two-way, reflex-loaded, stand-mounted speaker with a rated sensitivity of 96dB/W/m and an unusually high nominal impedance of 10 ohms. The wide-baffle design measures 28.25" H by 18" W by 12" D and has a 1" silk-dome tweeter and a 10" paper-cone woofer. The O/96 exhibited a superb overall tonal balance with impressive clarity, color, impact, drama, and scale, said AD. "The O/96 is distinctly easy to drive with low-power amplifiers, yet it's clearer, wider of bandwidth, and more spatially accomplished than most other high-sensitivity loudspeakers," he summed up. JA's measurements uncovered a low-treble resonance and a lively enclosure, but these problems were considerably less audible than he was expecting. AD originally considered this a very high Class B recommendation, bordering on Class A, but as of April 2015, the rating is upgraded. In a Follow-Up, AD noted: "I have refined my own O/96 installation, moving each speaker farther from its sidewall, and minimizing the influence of unfortunate room characteristics with some John DeVore-inspired asymmetry," with excellent results. AD also quoted John DeVore's observation that, in 2013, the O/96 was his best-selling model "by a clear margin. I wouldn't be surprised to see that it did that again in 2014." (Vol.35 No.12, Vol.38 No.1 WWW)

DEVORE FIDELITY ORANGUTAN O/93:

\$8400/PAIR

Made in Brooklyn, New York, the Orangutan O/93 is a two-way floorstanding loudspeaker with a 1" soft-dome tweeter and a 10" paper-cone bass/midrange driver. It measures 35.5" H by 15" W by 10" D, and has a claimed sensitivity of 93dB and a nominal impedance of 10 ohms. The beautifully finished cabinet is made from a combination of Baltic birch plywood and MDF; the front baffle has a distinctive fiddleback mahogany veneer, while the sides, back, and rear are veneered in maple and finished in high-gloss piano-black lacquer. Driven by ST's Unison Research Simply Italy, the DeVores delivered a lively, immediate sound, with a sweet and extended treble, punchy bass, and a deep, wide soundstage with excellent center fill. (Vol.37 No.1)

ENIGMACOUSTICS SOPRANINO SUPERTWEETER:

\$3690/PAIR (STANDS OPTIONAL)

Here's something you don't see every day: a horn-loaded, self-polarized, electrostatic supertweeter. Named after the smallest members of the saxophone and clarinet families, the Soprano is a 6-lb, 76"-tall, more or less cubical enclosure intended for installation either atop the user's nominally full-range speakers or on their own height-adjustable stands (\$600/pair). Its 12dB/octave high-pass filter can be set to one of three crossover frequencies—8, 10, or 12kHz—and connection via the Sopraninos' binding posts puts the supertweeters in parallel with their host speakers. A rear-mounted toggle switch offers the option of –3dB of attenuation. JA found that the Sopraninos, when used with the Joseph Audio Perspective loudspeakers, had a decidedly subtle influence on the sound of his system; on removing them after a week of listening, he declared his system still sounded good—"Just not quite as good." With JA's vintage Rogers LS3/5a loudspeakers, the Sopraninos allowed cymbals to sound "more like struck bronze than shaped and textured white noise," and stereo imaging was more palpable. Measurements revealed a clean cumulative spectral-decay plot and other distinctions, although JA was surprised that, by the end of the review, one of the Sopraninos had ceased performing above 15kHz: an enduring mystery. (Vol.37 No.6 WWW)

HARBETH MONITOR 30.1: \$5790 IN CHERRY

FINISH (STANDS NECESSARY)

The Monitor 30.1 is a two-way, front-ported design with a 1" soft-dome SEAS tweeter and Harbeth's 7.8" Radial2

mid/woofer. Fit and finish were superb. Though too demanding a load for ST's 3.5Wpc Sun Audio SV2A3 amplifier, the Monitor 30.1 produced "ravishing" midrange texture, tonality, and resolution when partnered with higher-powered solid-state amplification. Compared to the Triangle Comète Anniversaire, the Harbeth sacrificed speed and agility for richness and warmth. "If you're into classical and jazz, there is no other loudspeaker I can recommend so highly for \$6500/pair," concluded Sam. Standard finish is Cherry. Add \$400/pair for Eucalyptus or Rosewood, \$800/pair for Tiger Ebony finish. (Vol.35 Nos.11 & 12)

JOSEPH AUDIO PERSPECTIVE: \$12,999/PAIR

The 36"-tall, floorstanding Perspective combines the same SEAS 1" impregnated-fabric dome tweeter used in Joseph Audio's Pulsar with two SEAS 5.5" magnesium-cone woofers, all mounted on a baffle profiled to optimize high-frequency dispersion. The woofers are reflex-loaded with a rear-mounted resistive port—the resistive foam can be removed for certain applications—and, according to JA, with "an Asymmetrical Infinite Slope Crossover set at 2kHz, with about a 40dB/octave low-pass slope for the woofers." In his listening, JA noted slightly unforgiving trebles on recordings with ragged high frequencies, but with good recordings, the Perspectives delivered "a wide, rich sweep of full-range sound, with tangible stereo imaging." JA also noted midrange clarity and lack of coloration, and that the Perspective's bass performance required an amp with a firm hand lest it sound a bit phat. Summing up with praise for the Perspective's cosmetics and small footprint, he concluded: "It's a lot of high-performance loudspeaker in a beautiful, modest-sized, domestically appealing package." (Vol.37 No.7 WWW)

JOSEPH AUDIO PULSAR: \$7700/PAIR

(STANDS NECESSARY)

The compact (15" H by 9" W by 13" D), rear-ported Pulsar uses a 1" Sonatex-dome tweeter and a 5.5" cast-magnesium cone woofer, both built to Joseph Audio's specifications by SEAS. The MDF cabinet has an attractively beveled, piano-black front baffle; side panels are available in a choice of four high-gloss veneers as well as piano black. The Pulsar produced sweet treble, a neutral midrange, solid bass, and superbly focused images for a natural, involving overall sound, said MF. JA was impressed by the Pulsar's superbly flat on-axis response and well-damped enclosure. (Vol.35 No.6 WWW)

KEF LS50 ANNIVERSARY MODEL:

\$1499.99/PAIR \$\$\$ (STANDS NECESSARY)

This tribute to the famed LS3/5a monitor was made to celebrate KEF's 50th anniversary. Measuring just 11.9" H by 7.9" W by 10.9" D, the two-way, reflex-loaded design combines, in KEF's Uni-Q driver array, a 1" vented aluminum-dome tweeter and a 5.25" woofer cone of magnesium-aluminum alloy. The beautifully finished, computer-modeled MDF cabinet incorporates a convex front baffle, offset port, and damped internal cross-bracing for optimal suppression of external sound radiation and internal standing waves. The LS50 produced a surprisingly large, clean, transparent sound, with natural tone color and precise, stable stereo imaging, said JA, who also noted superb measured performance. "Recommended. Highly." ST found the LS50's tonality "spot-on, more neutral than sweet," adding that the diminutive KEFs could deliver "surprising bass: down to around 50Hz." ST's verdict: "I haven't had such great sound in my listening room since the departure of Quad's ESL-2805 electrostatics." As SM put it: "In 13 years of working at *Stereophile*, I have not seen another component that offers such a radical combination of value and performance." Late in 2014, after spending time with some new LS50 samples, JA wrote: "[Although] it had been two years since I'd last listened to the KEF LS50 at home, getting a new pair reminded me why I had so highly recommended them. The KEF LS50 gave a sound that was evenly balanced from the upper bass through the high treble, with superbly defined imaging." (Vol.35 No.12, Vol.37 Nos. 5 & 6, Vol.38 No.1 WWW)

LANSCH AUDIO 5.1: \$45,000/PAIR

Made in Germany, the Lansche Audio 5.1 is a three-way, floorstanding, reflex-loaded design with a horn-loaded

THE PHI 200

"... an extraordinary ability to resolve detail like no amplifier/s I have heard before ... bass command that is up there with the best solid state amplifiers I've experienced, along with the liquidity, transparency and beauty associated with the very best valve amplifiers ..."



... many yards closer to the goal of live music making recreated ... a 'must hear' for anyone searching for the ultimate in valve amplifiers."

–Rafael Todes. Violinist, Allegri Quartet
(quoted in HiFi World, September 2013)

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Corona plasma tweeter, a 4" polypropylene-cone midrange unit, and two 8.7" glass-fiber/fabric cone woofers. It measures 40.9" H by 10.1" W by 19.3" D, weighs 167.5 lbs, and is available in a variety of exotic satin veneers. The Lansche's sophisticated, revealing highs and lean, articulate bass were unforgiving of thin-sounding recordings, but the pair of them had a wonderful sense of space and superb stereo imaging, said JA. Very difficult to drive. To get the best from the Lansches, careful consideration should be taken in placement and partnering amplification, the tubed Audio Research Reference 150 working much better than good solid-state amplification. Price is in satin veneer; High Gloss adds \$5000/pair; Piano Black adds \$3000/pair. (Vol.35 No.7 WWW)

MAGICO Q5: \$65,000/PAIR ★

The massive Q5 (47" H by 12" W by 21" D, 387 lbs) is a four-way, sealed-box floorstander using a 1" beryllium-dome tweeter, 6" Nano-Tec midrange driver, 9" Nano-Tec midbass cone, and two 9" Nano-Tec woofers. Made entirely of aluminum and brass, the Q5's complex frame system is assembled from more than 50 machined parts with more than 350 fasteners of various types. Though it lacked some bottom-end weight and drive, which keeps this speaker from being rated Class A (Full-range), the Q5's transparency, resolution, and freedom from boxy colorations made it the smoothest, most detailed, least mechanical-sounding loudspeaker MF had ever heard. JA was equally impressed. Hard anodized aluminum finish adds \$6500/pair. (Vol.33 No.11 WWW)

MARTEN DJANGO XL: \$16,000/PAIR

Made in Sweden, the Django is a three-way, reflex-loaded floorstander with a 1" ceramic-diaphragm tweeter, 6" ceramic-diaphragm midrange unit, and three 8" aluminum-cone woofers. The cabinet is made of 25mm-thick MDF, has nicely rounded edges to reduce diffraction, and comes available in high-gloss Piano Black or Silver Grey (adds \$1500/pair). Fit and finish were superb. The Django had an open, uncolored, well-balanced overall sound, with outstanding soundstaging, warm and full-bodied bass, a superb midrange, and a treble that was both revealing and forgiving, said EL. "Marten's Django XLs gave me the best sound I have ever heard in my room. Highly Recommended," he concluded. (Vol.35 No.9 WWW)

MARTINLOGAN MONTIS: \$9995/PAIR

Made in Canada, the elegant Montis combines a 44" H by 11.3" W Curvilinear Line Source (CLS) electrostatic high-frequency panel with a 10" high-excursion, aluminum-cone woofer, the latter powered by a 200W amplifier. The bass cabinet is available in glossy finishes of hand-rubbed black ash, dark cherry, or black cherrywood. Though it lacked pinpoint imaging, the Montis had a scintillating treble, fast and weighty bass, and a natural midrange, said RD. Though he found respectable measured performance, JA cautioned that the Montis will sound rolled off on top when driven by a tube amplifier with a high source impedance. (Vol.35 No.9 WWW)

SONUS FABER GUARNERI EVOLUTION: \$22,000/PAIR ★ (STANDS NECESSARY)

The beautiful Guarneri Evolution is a two-way, port-loaded, stand-mounted loudspeaker with a 1" fabric-dome tweeter and 7" pulp-cone woofer. It measures 16.5" H by 9.25" W by 16.2" D, weighs 40 lbs, and uses an intricate mass-damping system trickled down from SF's flagship, The Sonus Faber. Though it sounded somewhat congested when used with AD's 25W Shindo Corton-Charlemagne monoblocks, the Guarneri Evolution produced richly textured, natural tone and delivered detail without edge or glare. "For the listener who delights in the rich, saturated, velvety tones of real instruments and voices, I can think of no more appropriate loudspeaker," said AD. JA found superb measured performance. Price includes stands; "stand-delete" option saves \$2000/pair. (Vol.35 No.1 WWW)

SONY SS-AR2: \$20,000/PAIR

This three-way, reflex-loaded, floorstander looks very similar to Sony's more expensive SS-AR1, but is 4" shorter, has twin 6.5" aluminum-cone woofers instead of the SS-AR1's 8" units, and has less extended low frequencies. The SS-AR2's 1" soft-dome tweeter and its Scan-Speak

5" sliced-paper-cone midrange unit are the same as in the SS-AR1, as is the strategically braced cabinet construction: panels of Scandinavian birch with a 2"-thick front baffle of laminated Japanese maple. The SS-AR2 combined sweet highs, well-extended lows, and a slight excess of midrange energy for an overall sound that was both pleasantly warm and superbly detailed, said JA, who was similarly impressed by the speaker's measured performance. (Vol.35 No.10 WWW)

SONY SS-NA2ES: \$10,000/PAIR

Cosmetically similar to Sony's more expensive SS-AR2, the SS-NA2ES is a beautifully finished three-way tower, approximately 35" H by 10" W by 16" D, with drive-units custom made by Scan-Speak in collaboration with Sony: twin 6.5" aluminum-cone woofers and a 5" midrange unit; but while the SS-AR2 used a single conventional 1" tweeter, the SS-NA2ES vertically mounts its 1" silk-dome tweeter between two 0.75" fabric-dome "assist" tweeters. The straight-sided cabinet is made of Scandinavian birch ply and finished in a luxurious dark-brown gloss. With some overcooked recordings, the Sony's highs had too much sparkle, but overall the speaker offered low coloration, high sensitivity, accurate and stable stereo imaging, and satisfying lows, said JA, who also noted excellent measured performance. "The SS-NA2ES offers its owner 90% of the performance of the SS-AR2 for 50% of its price," he concluded. (Vol.36 No.9 WWW)

SPENDOR D7: \$5995/PAIR \$\$\$

The British-built D7 is a 2.5-way, 38"-tall floorstander with a rated sensitivity of 90dB/W/m and a nominal impedance of 8 ohms. Its driver complement includes a 7/8" soft-dome tweeter with a specially designed cover of stainless-steel mesh, a 7" plastic-cone midrange/woofer, and a 7" Kevlar-cone woofer, the latter two drivers—both made by Spondor—loaded by the same reflex port on the rear. Used with ST's 80Wpc Quicksilver Silver 88 tubed monoblocks—"a superb combination"—and giving their best when placed about 3' from the wall behind them, the D7s played with "authority, weight, and speed." ST praised the speaker's fine trebles—"a crystalline clarity that put the Spondor D7 among the finest speakers I have heard at any price"—and noted that, "40 years on, Spondor is still known for getting the midrange right." Although ST's 3.5Wpc 2A3 amplifier failed to coax from the D7 sufficient bottom-end authority, the sound of that combination was "glorious"—and the Spondor was otherwise easy to drive with tubes or transistors, ultimately coaxing from the floorstander-phobic ST the highest praise: "one of the finest loudspeakers I have had in my listening room." (Vol.37 No.9, Vol.38 No.4 WWW)

TAD LABORATORIES COMPACT REFERENCE

CR1: \$42,000/PAIR ★ (STANDS NECESSARY)

Designed by Andrew Jones, this three-way, reflex-loaded, stand-mounted loudspeaker measures 24.7" H by 13.4" W by 17.5" D and weighs just over 100 lbs. It uses an 8" sandwich-cone woofer and a 1.375" beryllium-dome tweeter concentrically mounted with a 6.5" beryllium-cone midrange driver, all made by TAD. Finished in a gorgeous piano-gloss wood veneer, the speaker's enclosure includes a strong internal framework formed by 0.9"-thick, CNC-machined birch plywood clad with laminated MDF panels. JA: "It lacks the very lowest octave and is balanced a tad forward, but in all other respects it represents the state of the art of loudspeaker design and sound." Matching stands add \$3600/pair. (Vol.35 No.1 WWW)

TRIANGLE SIGNATURE DELTA: \$8000/PAIR

Triangle's Signature Delta is a three-way floorstander whose drivers and enclosure are all designed and manufactured in-house, said house being in France. Its two 7.3" fiberglass-cone woofers are loaded by a bifurcated reflex port on the front, while a 7.3" paper-cone midrange driver handles most of the audioband. That midrange is of notably limited excursion, in which vintage context the Signature Delta's horn-loaded titanium-dome tweeter, mounted atop the 4'-tall, curved-sidewall cabinet, fits well. Triangle specifies the Signature Delta's sensitivity as 92dB/W/m and its impedance as 8 ohms nominal, 3.2 ohms minimum (but see below). JA praised the Triangle's bass, observing that "a pipe-organ recording . . . had tre-

mendous weight through the Deltas when the bass pedals descended to 32Hz," while noting that the Delta's low frequencies had "excellent pace and force" and "[a] propulsive way with well-recorded rock." JA praised as equally important the speaker's resolution and clarity, and noted a superior "jump factor" that did not compromise neutrality: "Unless you like your music tame and uninvolved, this is a speaker well worth an audition." In his measurements, JA described the Signature Delta as "a well-engineered, well-optimized loudspeaker," although he uncovered an unkind impedance-phase angle at 82Hz that would seem to require a well-muscled amp. (Vol.37 No.9 WWW)

VIVID OVAL K1: \$25,990/PAIR

The K1 is similar in appearance to Vivid's less expensive B1, but whereas the B1 uses single woofers on its front and rear panels, the K1 has two woofers each fore and aft, and its cabinet extends lower to accommodate them. In addition, the K1's higher minimal impedance of 4.8 ohms (vs 2.8 ohms for the B1) makes it an easier load for the partnering amplifier. Compared to the B1, the K1 offered greater bass extension and had the more tactile and inviting lower midrange and treble, said JM. "Vivid's Oval K1 is one of the best loudspeakers I have ever heard," he concluded. (Vol.35 No.10 WWW)

VIVID B1: \$16,990/PAIR ★

Big brother to Vivid's V-1.5 and also designed by Laurence Dickie, the B1 is a three-way floorstander using Vivid's D26 metal-dome tweeter, D50 metal-dome midrange unit, and two C125 metal-cone woofers. It measures 43" H by 10.4" W by 14.75", weighs 84 lbs, and has an internal volume of 44 liters—exactly twice that of the V-1.5. Just as coherent as the V-1.5 but with greater bass extension, wider dynamic range, and a larger soundstage, the B1 had a relaxed, smooth, and effortless overall sound. "The B1 is so much more capable a speaker than the V-1.5 that, if you can afford it, the B1 actually represents better value for money," said JM. Though the B1's clean, grain-free treble could be "a little too revealing" of brighter recordings, JA appreciated the speaker's generous bass, natural midrange, superb imaging, and explosive dynamics. (Vol.34 Nos.2 & 10 WWW)

VOLTI AUDIO VITTORA: \$25,000/SYSTEM

Handmade in the US, the Vittora is a three-way, fully horn-loaded loudspeaker in two enclosures per channel, both made entirely of Baltic birch plywood. The lower bass cabinet is a single-fold bifurcated horn with a 15" rear-facing woofer; the upper enclosure houses a rectangular midrange horn and an elliptical treble horn. Build quality was excellent. The Vittora had a beautifully balanced, nuanced, and compelling sound, with smooth highs, forceful bass, and a remarkable sense of drive, said AD. "Volta Audio's Vittora is a great loudspeaker and a seriously great value," AD decided, though he adds "Not for the squeamish!". Volta Audio Vittora Subwoofer is now included in system price. (Vol.36 No.9 WWW)

WILSON AUDIO SPECIALTIES DUETTE SERIES 2: \$22,500/PAIR WITH STANDS (STANDS INCLUDED)

In the words of company founder/chief designer Dave Wilson, the Duette Series 2 loudspeaker was created for a "hostile environment," the definition of which includes limited floor space and the need to keep loudspeakers close to room boundaries. Codesigner Daryl Wilson made for the Series 2 a new stand, to which the crossover and connecting cables are integral. Other refinements include a more sculpted shape, and a new treble driver derived from the Convergent Synergy tweeter Dave Wilson designed for his top-of-the-line Alexandria XLF. Driven by low-power tube amps, the Series 2 Duettes impressed AD with how they "nailed the timbral colors of instruments and voice alike, with generous and very realistic saturation." And although the Duettes didn't have quite the scale or impact of his large Altec horns, AD observed that the Wilsons' "deep-bass power and extension were surprisingly good for their size. Cellos sounded subjectively undiminished down to their lowest tones, as did timpani and most double-bass notes, while nearly full weight was given to the orchestral bass drum." JA's measurements confirmed the high (91.6dB) sensitivity of the Duette Se-



Silver 2

"It's an excellent sounding loudspeaker..."

- Hi-Fi Choice
Dec. 2014

Silver 6

PRODUCT OF THE YEAR

- SoundStage, 2014

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Pronto."

- What Hi-Fi?
Dec. 2013

Silver 8

"I've been looking at speakers for \$3,000/pair or less for a while, and have not heard any that I would prefer to the Monitor Audio Silver 8."

- Kalman Rubinson
Stereophile, Jan. 2015

Silver 10

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- Spencer Holbert,
The Absolute Sound
Dec. 2014



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ries 2, and he confirmed that, "Overall, the Wilson Duette's measured performance suggests that it is a well-engineered design optimized for use close to the wall behind it." (Vol.38 No.3 WWW)

WILSON AUDIO SPECIALTIES SOPHIA SERIES 3: \$22,500/PAIR ★

The latest Sophia is a three-way, reflex-loaded floorstander with a 1" inverted titanium-dome tweeter, a 7" pulp/composite-cone midrange driver, and a 10" aluminum-cone woofer. Mild creases and angles have been added to the Sophia's cabinet to increase rigidity and diminish standing waves, and thicker panels of Wilson's dense phenolic X material are used for the main walls. Like the Sophia 2, the new model was spatially stunning, sonically explicit, and musically expressive, with good drama and scale, high transparency, and low coloration, but with greater openness and resolution of detail. AD: "The Sophia 3 is a new and fine example of Wilson's modern thinking: a true high-fidelity device that's also capable of sounding *beautiful*." (Vol.34 No.2 WWW)

B (FULL-RANGE)

ADAM AUDIO CLASSIC COLUMN MK3: \$7500/PAIR

Made in Berlin, the Classic Column MK3 is a 3.5-way, reflex-loaded floorstander with smartly chamfered edges and a stiff, heavy base. It uses ADAM's eXtended Accelerating Ribbon Technology (X-ART) tweeter, a larger X-ART ribbon midrange unit, and two 7.5" HexaCone woofers. The Column produced an extremely detailed, extended bottom end, a clean midrange, and a marvelously transparent and delicate treble, said KR. Though dynamic contrasts could be both subtle and staggering, the broad, deep soundstage was too forward and imposing for KR's tastes. Compared to the B&W 800 Diamond, the Classic Column MK3 was "a splash of cool water in the face and a kick in the butt," KR concluded, adding that "This is an impressive sub-\$10k speaker that should be considered by anyone willing to spend much more." JA noted "sensible and effective audio engineering." (Vol.35 No.8 WWW)

AUDIO NOTE AN-E/SPE HE: \$9300/PAIR ★ (STANDS NECESSARY)

This latest revision of Audio Note's AN-E design uses the same 1" tweeter found in earlier models, but a new 8" hemp-cone woofer. Its intentionally thin-walled, minimally damped cabinet is made of Russian birch plywood and veneered on all surfaces. Despite a "mild darkness" in the midrange, the AN-E/SPE HE was "a *remarkably* good retriever of detail," said Art. Compared to the more expensive Lexus Signature, the SPE HE was less colored and had a better sense of musical flow. "It does a better job than most of *really* connecting the listener with the dramatic, intellectual, and emotional intensities captured in every groove," AD concluded. "Class A!!!" he recommends, with all three exclamation points. Close placement to the wall behind them is recommended to extend the low frequencies and increase the midbass level, though this may sacrifice lower-midrange smoothness. JA felt the Audio Note sounded cleaner and better defined in the bass than the Harbeth M40.1, but was bothered by a "slight cupped-hands coloration" and a "rather lean lower midrange," hence a Class B rating. Matching 10" stands cost \$660/pair. (Vol.31 Nos.8 & 11 WWW)

BOSTON ACOUSTICS M350: \$2498/PAIR

The M350, the top model in BA's M series, is a three-way, reflex-loaded floorstander with a 1" Extended Wide Bandwidth soft-dome tweeter, a 4.5" mass-loaded polypropylene-cone midrange, and four 5.25" polypropylene-cone woofers. The cabinet sidewalls are beveled at their tops and bottoms and finished in high-gloss black; the front baffle and the top and bottom panels are covered in black faux leather. JA used foam port plugs (included) to tame a pervasive excess of upper-bass energy. Ports plugged, the M350s offered well-defined stereo imaging and had a darkish overall balance, with smooth highs and warm lower mids. Other than a strong cabinet-wall resonance in the lower midrange, the M350 measured superbly well, said JA. (Vol.36 No.8 WWW)

BOWERS & WILKINS 804 DIAMOND: \$7500/PAIR

The smallest floorstander in B&W's 800 series, the 804D is a three-way, reflex-loaded design with a 1" diamond-dome tweeter, a 6" woven-Kevlar-cone midrange, and two 6.5" Rohacell-cone woofers. It measures 39.8" H by 9.3" W by 13.7" D, weighs 60 lbs, and is available in rosenut, cherry, or piano-gloss black veneers. Though the 804Ds lacked some bass weight and impact, they produced a clean, detailed treble; a rich, involving midrange; and an open soundstage with pinpoint imaging, said KR. "For the money, I don't feel you can do much better," he concluded. Though JA was bothered by a slight suckout in the 804D's presence region, he noted "quite respectable" measured performance. (Vol.36 No.9 WWW)

BRYSTON MIDDLE T: \$5400/PAIR

A floorstanding tower just under 40" tall, the Bryston Middle T—the name is a reference to designer and Bryston co-founder James Tanner—is a three-way, reflex-loaded loudspeaker with a complex, well-braced, and ultimately heavy (over 80 lbs) enclosure. The Middle T has a 1" metal-dome tweeter, a 5.25" polypropylene-cone midrange driver, and two 8" polypropylene-cone woofers, the last loaded by twin rear-firing reflex ports. With the Brystons in place of his usual B&W 800 Diamonds, KR reported "such integrity that it might have been generated by a single driver . . . large, holographic soundstages that approached what I enjoy with my multichannel system . . . thrilling new detail" from old, familiar recordings, and bass that was "outstanding for a speaker of this size." On the downside, KR noted that "male voices sounded natural, but somewhat richer" than he's used to, and was disappointed by the appearance of the wood veneer and the "ungainly" grilles. JA found lower sensitivity than claimed (85 vs 88dB/W/m), and an impedance curve that, in his words, "starts to resemble a short circuit at ultrasonic frequencies," indicating the need for care in the selection of a partnering amp. Rosewood veneer adds \$800/pair. Vinyl available at special order for \$4680/pair. (Vol.38 No.2 WWW)

DALI RUBICON 8: \$7995/PAIR

Neither a two-way nor even a three-way loudspeaker, the Rubicon 8 is referred to by its manufacturer, DALI, as a "2 1/2+1/2+1/2-way" loudspeaker: None of its three 6.5" woofers covers the same range as the others, and only the one at the loudspeaker's (physical) top extends as high as 2.5kHz, whence the music is given over to a 1.15" soft-dome tweeter, which itself hands off to a ribbon supertweeter at 14kHz. Although each is operated over a different frequency range, all three woofers are, in JA's words, "technically sophisticated," and benefit from a proprietary material said to reduce hysteresis distortion. They and the higher-frequency drivers are all made by DALI, and are installed on the front baffle of a 43.5"-tall MDF enclosure, the rear panel being taken up by two pairs of binding posts and three reflex ports. JA reported hearing good bass weight—although some lower-pitched instruments sounded "overripe" and "a little on the rich side"—and noted that "the Rubicon 8's reproduction of the top octaves was superb." JA also noted that, "With all recordings I played, the Rubicon 8s threw a solid, well-defined, impressively stable soundstage, with precise layering of image depth." Writing from his lab, JA suggested that the DALI's measured performance "indicates a careful balance of its design parameters to produce a seductive yet clean full-range sound." (Vol.38 No.3 WWW)

FOCAL ARIA 936: \$3999/PAIR \$\$\$

This three-way, five-driver, French-made floorstander is among the first products to use Focal's new driver-cone material: a sandwich of flax and fiberglass that's said to offer low mass, high rigidity, and good self-damping properties. That material finds its way into the Aria 936's three 6.5" woofers and single 6.5" midrange driver, while its 1" dome tweeter is made of an aluminum-magnesium alloy, also new. The 936 also has three reflex ports—two on the front, one on the bottom—and a spiked plinth, the design of which contributed to easy setup work for RD, who also praised the 45"-tall Aria 936 for its "big, spacious sound" and for being "tonally neutral, with impressive dynamics, and powerful bass for the size of the speaker." RD also singled out for praise the Focal's treble range, for sounding "clean and extended but not overly bright, with no empha-

sis added to sibilants." At the other end, "double basses, bowed or plucked, were firm, not weak or exaggerated." RD added that, although "the Aria 936 couldn't match the startling dynamics of the horn-hybrid Avantgarde Uno Nano, it came surprisingly close." JA's measurements confirmed the 936's good sensitivity but found a wider low-impedance range than implied by its 8-ohm rating, thus indicating the need for a non-wimpy amplifier. Otherwise, his test results confirmed the Focal's standing as "an extraordinary value." (Vol.37 No.11 WWW)

GOLDENEAR TRITON ONE: \$4999.98/PAIR \$\$\$

Preceded in the GoldenEar line by a number of less-expensive loudspeakers, the Triton One is their new flagship: a 54"-tall tower whose cloth wrap conceals a powered, passive-radiator-loaded subwoofer system, two 5.25" midrange drivers, and, as RD describes it, "GoldenEar's version of the famed Heil Air-Motion Transformer, called a High-Velocity Folded Ribbon tweeter." Other distinctions include a fully balanced crossover, the use of DSP in the active portions of said crossover, and a 1600W internal subwoofer amp. According to RD, the Triton One performed with little strain on music played at "impress-your-friends levels," but that was far from this pony's only trick: "I could play the speakers at a low level and all the music was still there." He added, "the bass always tuneful and firm. In music that didn't reach down into the deep bass, there was no midbass emphasis to give a false impression that there was deep bass." JA's measurements confirmed the Triton One's high sensitivity, but noted an impedance-phase angle sufficiently challenging that the user "will require a good 4 ohm-rated amplifier to drive the speaker to acceptably high levels." In all, JA declared this latest GoldenEar to be "another finely engineered loudspeaker." Borderline Class A. (Vol.38 No.2 WWW)

GOLDENEAR TECHNOLOGY TRITON TWO: \$2999.98/PAIR \$\$\$

Designed by industry veteran Sandy Gross and his team, and made in China, the Triton Two is a three-way floorstander with a unique array of drive-units: a High-Velocity Folded Ribbon tweeter, two 4.5" midrange cones, two 7" by 10" passive radiators, and two 5" by 9" cone woofers powered by a 1200W class-D amplifier. The speaker's slim cabinet is made of high-density Medite, features a separate subenclosure for the midrange drivers, and is covered in black cloth. Though it exhibited some box colorations when pushed too loud, the Triton Two offered sweet, detailed highs, an uncolored midrange, well-extended lows, and excellent dynamics, said RD. (Vol.35 Nos.2 & 10 WWW)

KEF Q900: \$1799.99/PAIR ★

The largest model in KEF's affordably priced Q series stands 3.5' H by 14.1" W by 12.7" D, weighs almost 50 lbs, and rests on a sturdy, spiked plinth. In addition to KEF's 8" Uni-Q coaxial driver, which includes a large (1.5") tweeter with a Tangerine waveguide, the 2.5-way Q900 uses an 8" woofer and two 8" passive radiators. Though the Q900 lacked the bass impact of the larger B&W 800 Diamond, it matched a clean, detailed treble with deep, taut bass and a stable, spacious soundstage, said KR. JA noted superb measured performance, and was impressed by the Uni-Q driver's uniform dispersion. (Vol.34 No.9 WWW)

LINE MAGNETIC 755 I: \$9000/SYSTEM

Made in China, the floorstanding 755 I uses a full-range, field-coil drive-unit and comes bundled with a pair of Line Magnetic PR-3 power supplies, each of which uses a 300B direct-heated triode tube as a voltage regulator. The 755 I's decidedly old-fashioned enclosure is made entirely of lightly damped plywood; stranded copper wire is used for both the interior signal leads and the two field-coil leads, the latter soldered to a separate connector on the speaker's removable rear panel. Though it lacked treble extension, bass extension, and bass impact, the 755 I was "full of touch, impact, nuance, detail, and humanness," said AD, but cautions "for special tastes only." Placing the 755 I on a 6"-tall stand resulted in increased bass extension and improved presence and tactility, said AD. (Vol.35 Nos.9 & 11 WWW)

LINN MAJIK 140: \$2995/PAIR ★

The four-way Majik 140 uses a 0.75" fabric-dome super-



► Charles Hansen loves tubes...

"The KX-R Twenty is as good as a preamplifier can get."

— John Atkinson, Stereophile

"It stands to reason that if Ayre Acoustics' original KX-R was the best preamp I'd ever had in my system, and the KX-R Twenty is even better, then the KX-R Twenty is the new 'best preamp I've ever heard.' It is."

— Jeff Fritz, SoundStage!

Twenty

When I founded Ayre 21 years ago, there were several axioms that we adopted as givens:

- *Rule One* : We would only design and build products that we wanted to own ourselves.
- *Rule Two* : There are already too many products with precious little to differentiate them. Every Ayre design *must* have radical innovations, ideas that had *never* been done before.
- *Rule Three* : The goal was to build kit that gave the same sense of involvement, musicality, and life to the music that a great tube design does.

Though I still loved the way that tubes presented the musical experience, I had come to that point in my life where I simply didn't have the time for them any more. Once it had been fun to "roll" tubes and experiment with them. Now I had a business to run and a family. Life had changed and I simply had no time for tubes. While creating great tubed electronics would have been fun and easy, it would have violated Ayre's Rule Number One.

Our first product fit all of the criteria of Ayre's philosophy. Yet no experienced listener would ever mistake it for a tubed amplifier. But with each new generation, we came closer to our elusive goal, step-by-step, while preserving the musicality and listenability of tubes.

With the Twenty series (to celebrate our 20th anniversary), we have actually surpassed our original goal from Rule Number Three. For the first time ever, we have created pure solid-state designs that actually sound better than the best tubed equipment I have ever heard.

That is a bold claim, and one that you have probably heard before. But I invite you to visit your Ayre dealer and listen for yourself. Better yet, arrange to audition an Ayre Twenty series product in your own home, in your own system, with the music that you love.

Because with the Ayre Twenty series, you no longer hear solid-state. You no longer hear tubes. You just hear that which we all love so much—music.

— Charlie Hansen

tweeter, a 1.17" polyurethane elastomer-dome tweeter, and two 6.5" doped-paper-cone mid/woofers. Four pairs of binding posts allow for quad-wiring or -amping, while a pair of foam bungs can be inserted in the speaker's rear ports for setups where the speakers must be placed flush against walls. BJR was impressed by the Majik 140's extended highs, uncolored midrange, superb reproduction of transients, and forceful bass. "It doesn't get much better than this for the money," he concluded. JA, however, was bothered by the speaker's lively cabinet and suboptimal integration of the drive-units' outputs. High-gloss custom finishes are available for an extra \$950/pair; optional bases add \$580/pair. (Vol.34 No.6 WWW)

MONITOR AUDIO SILVER 8: \$2000/PAIR \$\$\$

The British-designed, Chinese-made Monitor Silver 8 is three-way floorstander using a 1" vented-diaphragm dome tweeter, a 4" midrange driver, and two 6" woofers—all with diaphragms made of C-CAM, Monitor Audio's ceramic-coated aluminum-magnesium material. The MDF cabinet has separate chambers for the woofers, which are reflex-loaded. KR lauded the Silver 8 for having a "fit and finish that are probably impossible to achieve at the price without production in the Far East." He also commented on its midrange clarity, and a bottom end that, if not stygian, "was in good balance" and "remarkably solid and satisfying." And as for spatial performance, multi-channel enthusiast KR wrote, "I can't say that listening in stereo via the Silver 8s was anything less than delightful." According to JA's measurements, "other than [a] slight excess of energy in the tweeter's passband, the response is impressively even and flat." He praised the Silver 8's "superb measured performance at a very competitive price." Black or White gloss finish adds \$200/pair. (Vol.38 No.1 WWW)

NOLA METRO GRAND REFERENCE GOLD: \$33,000/PAIR

The floorstanding Metro Grand Reference Gold uses a pair of 6.5" SEAS magnesium-alloy woofers, each performing in its own rear-ported subchamber and sporting phase plugs in place of dustcaps. (The model name derives from the plugs' gold plating, claimed to damp parasitic vibrations.) The midrange and treble drivers—a 4" laminated cone and a Serbian-made aluminum-diaphragm ribbon, respectively—are fastened to an unenclosed extension of the front baffle. Copper-ribbon chokes and proprietary oil capacitors feature in the crossover, and the loudspeaker rests on a double-platform, ball-bearing isolation base, the bottom layer of which is spiked to the floor. JA noted a "generally polite, rather mellow balance" that "favored jazz and orchestral music over rock," although "well-recorded drums generally sounded excellent through the Nolas, with impressive impact and weight." On the minus side, JA described a lack of midrange clarity with some recordings, and noted that cymbals and other instruments often lacked air—an observation confirmed with dual-mono pink-noise tests. And: "At exactly 34Hz, the speaker shook—the rattle was due to the top part of the base sliding on the bearings and hitting the end stops." JA's measurements revealed uneven high-frequency performance at various listening heights and axes, and resonances in various elements of the cabinetry. His tests also suggested that the Metro Grand Reference Gold has lower sensitivity than specified, although it should otherwise be "a relatively easy load for an amplifier to drive." BJR is working on a "Follow-Up." (Vol.37 No.11 WWW)

NOLA CONTENDER: \$3800/PAIR ★

The Contender is a three-way, reflex-loaded, floorstanding loudspeaker with a 1" silk-dome tweeter and two 6.5" polymer-cone woofers. It measures 44" H by 8" W by 12" D, weighs 50 lbs, and is available in a Piano Black or Piano Cherry finish. Though it lacked some bass impact and sounded compressed when pushed too hard, the Contender impressed BJR with its rich, luscious midrange and smooth, extended treble. JA found good measured performance, but was puzzled by the complex arrangement of the speaker's bass drivers and their ports. "I can't help wondering if a more orthodox design using the same drive-units would produce greater low-frequency extension," he said. (Vol.35 No.1 WWW)

PSB IMAGINE T2: \$3498/PAIR

The Imagine T2 Tower is a slim (ca 41" H by 8" W by 13" D), five-way floorstander with a 1" ferrofluid-cooled, titanium-dome tweeter, a 4" clay/ceramic-filled polypropylene-cone midrange driver, and three 5.25" clay/ceramic-filled polypropylene-cone woofers, each with its own internal chamber and rear-firing port. Handsomely finished in black ash, cherry, or walnut—High Gloss Black or High Gloss White add \$352/pair—the MDF cabinet is teardrop-shaped in cross section to minimize internal reflections. The Imagine T2's well-balanced, coherent overall sound included a sweet treble, a clean midrange, excellent bass, and satisfying dynamics, said RD. "An excellent speaker that offers outstanding value," he summed up. JA noted "a clean bill of measured health." (Vol.36 No.11 WWW)

REVEL PERFORMA3 F208: \$5000/PAIR \$\$\$

The new F208, from Revel's Performa3 line, is a floorstanding three-way speaker with all aluminum drivers: a 1" dome tweeter, 5.25" cone midrange, and two 8" cone woofers. The woofers are reflex-loaded through a front-mounted port with a removable resistive plug, while the tweeter fires through a newly designed, dispersion-enhancing waveguide. Sensitivity and impedance are 88.5dB/W/m and 8 ohms, respectively. The biwireable F208 includes two user controls: a tweeter-level control that works in 0.5dB increments, and a bass-contour switch with settings for Normal—for speakers positioned away from walls—and Boundary. EL was impressed with the fit and finish of the F208s, which are made in Indonesia, and had no trouble optimizing them for his small room, in which they sounded seamlessly coherent, with note fundamentals "in perfect balance with the formants and overtones" of choral music. EL welcomed the effectiveness of the treble control, without which "the tweeter did very little to hide the flaws of bad recordings," praised the untubby and well-extended bass, described the stereo imaging as "superb," and lauded the Revel's lack of compression and apparent strain, pronouncing the F208 "my new benchmark for loudspeakers at this price." Summing up his measurements, JA wrote, "In every way, this is textbook loudspeaker design." (Vol.37 No.7 WWW)

SPENDOR SP100R2: \$11,495/PAIR (STANDS NECESSARY)

The flagship of Spondor's Classic line is a three-way, stand-mounted, reflex-ported design with a 0.8" fabric-dome tweeter, 7" polymer-cone midrange, and 11.8" Bextrene-cone woofer. Its thin-walled, mildly resonant MDF cabinet has minimal internal bracing and damping. Careful placement was required to achieve optimal bass response. Though it lacked some bottom-end tightness and impact, the Spondor matched a warm tonal balance with excellent midrange detail and articulation, good transparency and presence, and stable soundstaging, said AD. JA's measurements uncovered a number of high-level resonances. (Vol.36 No.1 WWW)

TEKTON DESIGN ENZO XL: \$2100/PAIR \$\$\$

Provisional rating. See HR's review in this issue.

VANDERSTEEN TREO: \$6900/PAIR \$\$\$ ★

The compact (43" H by 10" W by 15" D) Treo is a four-way, reflex-loaded floorstander with a 1" ceramic-coated alloy-dome tweeter, 4.5" tri-woven composite midrange cone, 6.5" tri-woven fiber-cone woofer, and 8" carbon-loaded cellulose-cone subwoofer. Like previous Vandersteen designs, the Treo uses a combination of sloped-back driver array and first-order crossover to produce a time-coincident wavefront launch. A black cloth grille optimizes diffraction and minimizes reflections of the high frequencies from the baffle edges. Though they could be ruthlessly revealing of overcooked modern recordings, the Treos offered excellent transparency, well-extended lows, and a clean, natural midrange, said JA, who noted respectable measured performance. (Vol.36 Nos.3 & 5 WWW)

VIENNA ACOUSTICS BEETHOVEN BABY GRAND-SE: \$6000/PAIR

The drivers in this three-way floorstander comprise a 1.1" hand-coated silk-dome tweeter, a 6" midrange driver made of the company's proprietary X3P polymer, and two 6" woofers made of the same transparent material, stiffened with the radial ribs that have become a Vienna

Acoustics trademark. The crossover uses first- and second-order filters at 150Hz and 2.3kHz, and at the rear of the enclosure, next to the reflex port, is a single pair of binding posts. In TJN's generously sized listening room, the Beethoven Baby Grand Symphony Editions sounded "'open and airy' . . . but not at all hard." At the other end of the audioband, "bass seemed more subdued than smash-mouthed, but I never found it lacking." Overall, listening to a variety of recordings through two different front ends, TJN found that the speaker's "lively but always natural-sounding balance kept me listening to recordings long after I'd planned to move on to others." In measuring the Viennas, JA found considerably lower sensitivity than the specified 91dB, and, despite a benign electrical phase-angle curve, recommended use of a good 4-ohm-rated amp. He also found some wrinkles in the performance of the midrange driver, but observed that in this speaker's "carefully balanced design," the effects of those flaws are reduced by other factors. (Vol.38 No.1 WWW)

WHARFEDALE JADE 7: \$4199/PAIR

The largest speaker in Wharfedale's Jade line, the 7 is a four-way floorstander with a 1" aluminum-dome tweeter, a 3" upper-midrange driver with an aluminum-pulp-composite cone, a 6.5" lower-midrange with Accufibre cone, and two 8" woofers with Accufibre cones. The gracefully curved cabinet uses a modern version of the aperiodic loading developed by Wharfedale founder Gilbert Briggs and is made of Crystallam, a proprietary laminated substance designed to reduce panel vibrations and distribute resonances over a wider range. The Jade 7s produced a tonally neutral and well-balanced overall sound with excellent transparency, detail, soundstaging, and dynamics, said BD. "The Jade 7 is a speaker in the classic tradition of Wharfedale," he concluded. "It is rare to find even an expensive speaker that measures as well as this," praised JA. Add \$800 for Piano Gloss Black finish. (Vol.36 No.5 WWW)

B (RESTRICTED LF)

CANALIS ANIMA: \$3250/PAIR ★ (STANDS NECESSARY)

Designed by Joachim Gerhard, the Anima is a stand-mounted, rear-ported, two-way speaker with an attractive enclosure of bamboo plywood. It has a 0.75" metal-dome tweeter and a 5" anodized aluminum-cone woofer. Driven by AVM's Evolution C8 CD receiver, the Anima produced clean, clear sound with a natural sense of space, sophisticated tonal color, and good momentum and flow, said JM. Placing the Animas on their matching stands (\$1500/pair) produced greater bass extension, a bigger soundstage, and better integration of the woofer and tweeter outputs. The Anima's slightly hot tweeter will make it a better match for mellow-sounding electronics, JA advised. Anima stands are \$1500/pair. (Original version, Vol.30 No.7 WWW; Vol.36 Nos.2 & 3; also see MF's Marantz review in Vol.33 No.4)

DYNAUDIO FOCUS 160: \$2900/PAIR (STANDS NECESSARY)

The Focus 160 is a small (13.8" H by 7.9" W by 11.6" D), two-way, stand-mounted loudspeaker with high-quality Dynaudio drivers: a 1.1" soft-dome tweeter based on the Esotar2, and a 6.7" mid/woofer that uses a one-piece cone of magnesium silicate-impregnated polymer. The available finishes are Walnut, Black Ash, Rosewood, Maple, and Black or White Gloss Lacquer. The Focus 160 offered a relaxed, refined, exceptionally spacious sound with extraordinary low-level resolution of ambient information, said ST. "Once again, Dynaudio has done it," he concluded. (Vol.35 No.1 WWW)

DYNAUDIO EXCITE X14: \$1500/PAIR (STANDS NECESSARY)

Descended from the company's Excite X12, itself a "Recommended Components" stalwart, the Dynaudio Excite X14 is a smallish (11.2" tall), two-way stand-mounter with a reflex port at the rear. Compared with its predecessor, the X14 boasts a redesigned 5.7" woofer, a more advanced coating for its 1" fabric-dome tweeter, a new crossover, and a refinement in its reflex-port tuning. BJR praised the X14 for a treble range that was "cleaner and more



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articulate in high-level passages" than that of its predecessor, and noted that he was "very impressed with the Excite X14's bass performance throughout a wide range of recordings." His verdict: "Dynaudio has taken all of the aspects of the Excite X12 that I liked and improved them across the board," creating in the process BJR's "new favorite bookshelf loudspeaker for under \$2000." In his measurements, JA confirmed that the X14 is easier to drive than the X12, and pronounced the new model "a well-engineered design." BJR found the tiger-stripe rosewood veneer of his review samples "sexy." We'll speak to him. (Vol.37 No.10 WWW)

HARBETH P3ESR: \$2190/PAIR ★
(STANDS NECESSARY)

The two-way, sealed-cabinet P3ESR stands just 12" tall and partners a 0.75" tweeter with a 5" woofer, the latter using Harbeth's proprietary, patented Radial2 material for improved clarity and low-level resolution. Though restricted in loudness and bass extension, the P3ESR had a slightly warm overall balance characterized by smooth highs, an uncolored midrange, and stable and accurate stereo imaging. "The Harbeth P3ESR is the best iteration yet from any manufacturer of the BBC LS3/5A minimonitor concept," concluded JA. Further evaluation by JA confirmed this speaker's uncolored midrange, smooth highs, well-defined if somewhat lightweight lows, and coherent overall sound, even when driven to high levels. The littlest Harbeth also gets the strongest recommendation from JM. While its lack of low and midbass disqualified it for most rock and large-scale orchestral performances, felt BD, the Harbeth's incredible midrange clarity and detail made it an outstanding choice for small, intimate works. Rosewood, Black Ash, Tiger Ebony, and Eucalyptus finishes add \$200/pair. (Vol.33 Nos.8 & 10, Vol.34 No.7 WWW)

KEF R700: \$3599.98/PAIR

The middle model of KEF's R series of British-designed, Chinese-made loudspeakers, the R700 is a 44.1"-tall floorstander in which a 5" coaxial Uni-Q driver is joined by a pair of 6.5" concave-cone woofers, all drive-units made of aluminum. The Uni-Q handles everything from 500Hz up, while the two woofers—which physically straddle the Uni-Q driver, D'Appolito-style, and are reflex-loaded with twin ports—are specified as 6dB down at 37Hz. TJN found it more daunting than usual to get the R700s to perform as specified in terms of bottom-end extension and smoothness, but eventually was rewarded with "full-bodied and boom-free" bass, the extension of which surprised him—although the very deepest tones and sound effects went missing. A "slight forwardness to voices" in most music characterized the R700s, coupled with a top-end "reticence" in which not every recording retained its natural sparkle: "The KEF R700s . . . leaned more to the forgiving than to the aggressive side, but were by no means dull." Stereo imaging was "excellent." In his measurements, JA discovered the R700 to be less sensitive than claimed—87 rather than 89dB/W/m—but described the load as benign; beyond that, he found that the R700 "demonstrates some excellent engineering expertise." (Vol.37 No.9 WWW)

PENAUDIO CENYA: \$3995/PAIR
(STANDS NECESSARY)

Made in Finland, the Cenia is a two-way, rear-ported mini-monitor with a 0.75" tweeter and a 6" mid/woofer, both sourced from SEAS. The beautiful cabinet measures 11.2" H by 6.4" W by 12.6" D and is made of laminated birch plywood and MDF. ST achieved best results when placing the Cenyas in the nearfield, noting an especially wide, deep soundstage with pinpoint imaging. The tonal balance was "refreshingly cool" and well suited to classical and jazz, he said. (Vol.35 No.6)

POLK LSIM703: \$1498/PAIR \$\$\$
(STANDS NECESSARY)

This three-way, bass-reflex, bookshelf loudspeaker measures 16.75" H by 8" W by 14.5" D, weighs 29.6 lbs, and uses a 1" ring-radiator tweeter, 3.25" foamed polypropylene-cone midrange, and a 6.5" foamed polypropylene-cone woofer. The midrange driver is mounted above the tweeter in a system that Polk calls a Dynamic Sonic Engine, said to produce wide dispersion and clean tran-

sient response. The gorgeous MDF cabinets are available in real-wood cherry and mahogany veneers. Though its treble could sometimes sound a bit forward and loose, the LSIM703 had a lively, engaging sound with a detailed, uncolored midrange and a clean, authoritative bass, said BJR. JA noted superb measured performance. (Vol.35 No.9 WWW)

REVEL PERFORMA3 M106: \$2000/PAIR
(STANDS NECESSARY)

A two-way, reflex-loaded speaker intended to be bolted to a matching M stand (\$500/pair), the M106 is from Revel's Performa3 line of US-designed, Indonesian-made speakers. Its drive-units are a 1" aluminum-dome tweeter fitted with a waveguide said to improve dispersion above 8kHz—thus smoothing its frequency response and adding to the M106's detail resolution and spaciousness—and a reflex-loaded, 6.5" aluminum-cone mid/woofer. BJR: "The M106's stiff enclosure has its curved side panels formed from contiguous wood layers and is stiffened with strategically oriented bracing," and "the speaker's rear-firing port has identical flares at both ends"—to minimize compression and noise, of course. BJR said of the M106, "Its strengths impressed me across the board, especially for a speaker of its size and price," noting in particular the Revel's superb ability to articulate transients, its fine upper-bass clarity, and its low-bass forcefulness: "I found the speaker's bottom end impressive for a bookshelf model of its size." In addition to observing that "an amplifier or receiver rated at 4 ohms would probably work best with this speaker," JA noted "excellent measured performance that in turn reveals inspired audio engineering." Later in 2014, JA brought home the review pair, and compared them with a pair of the well-regarded KEF LS50: "[The] M106es did a little better when it came to separating the strands in [a] dense mix . . . [but] as much as I appreciated the Revel's transparency to recorded detail, its treble was a little unforgiving." But JA, whose room is not at all overdamped, then added: "In rooms that are larger than mine and/or more damped in the treble . . . the Revel M106's treble would tend to sound in better balance with the midrange." (Vol.37 No.9, Vol.38 No.1 WWW)

SONUS FABER VENERE 2.5: \$2498/PAIR

Beautifully finished in black or white lacquer, the Venere 2.5 is a compact (43.2" H by 13.3" W by 17" D), 2.5-way, reflex-loaded design with a 1.1" fabric-dome tweeter, a 7" Curv-cone mid/woofer, and a 7" Curv-cone woofer. The cabinet's sidewalls curve around to meet a very narrow rear panel just wide enough to accommodate a staggered array of four multiway terminals; the cabinet sits on a thick glass base plate that accepts four substantial spikes, the front pair nearly an inch longer than the rear, so that the entire cabinet tilts back to align the tweeter with the deeper woofer diaphragms. The sound was spacious, relaxed, and well balanced overall, with detailed mids and highs and a rich lower midrange, said KR. "The Venere 2.5 is not only provocatively sexy in appearance; it delivers," he concluded. The Venere 2.5 exhibited an exaggerated midbass on the test bench, but offered "respectable measured performance" overall, said JA. Add \$500 for wood finish. (Vol.36 No.11 WWW)

SPENDOR S3/5R2: \$1595/PAIR
(STANDS NECESSARY)

This updated version of Spendor's Classic S3/5se is a small (11.9" H by 6.4" W by 7.4" D), two-way, sealed-box design with a 5.5" polymer-cone woofer crossed over to a 0.9" soft-dome tweeter at a very high 4.2kHz. The S3/5R2 lacked low-bass extension and had limited high-level dynamics, but offered an exceptionally clear and coherent sound, with delicate highs, well-articulated transients, and musical bass, said BJR. Although it didn't perform appreciably better than the S3/5se, the S3/5R2 nevertheless offered respectable measured performance, said JA. (Vol.36 No.3 WWW)

STIRLING BROADCAST LS3/6: \$4590/PAIR \$\$\$
(STANDS NECESSARY)

Derived from the legendary Spendor BC1, Stirling's BBC LS3/6 is a three-way, reflex-loaded, stand-mounted loudspeaker with a 0.75" polymer-dome supertweeter, a 1" fabric-dome tweeter, and an 8.6" polymer-cone woofer.

The speaker's cabinet measures 25" H by 11.75" W by 11.75" D, is available in cherry and walnut real-wood veneers (rosewood, ebony, and Zebrano add \$360/pair), and is built from three different types of board: 5/8"-thick MDF for the rear panel, 3/8"-thick MDF for the baffle, and 3/8"-thick birch plywood for the remainder. Though it lacked some physicality, bass extension, and overall impact, the LS3/6 produced a natural, compelling sound, with a good sense of space and an especially warm, rich, textured midrange, said AD: "Heartily recommended." Open-frame hardwood stands, made by Resonant Woods, add \$399/pair. (Vol.37 No.3 WWW)

STIRLING BROADCAST SB-88: \$3450/PAIR
(STANDS NECESSARY)

The SB-88 is a two-way, stand-mounted loudspeaker with a 1" soft-dome tweeter and an 8" polypropylene woofer. It uses the traditional BBC thin-walled, internally braced cabinet, but with its front and rear panels glued rather than screwed on. With a convincing soundstage and a sound that was laid-back, sweet, and honest, the SB-88 always drew ST deep into the music. "The SB-88s don't wow me," he said. "They comfort me." Price is for cherry finish; ebony, rosewood, and zebrawood finishes add \$400/pair. (Vol.37 No.2)

TERESONIC MAGUS: \$7995/PAIR
(STANDS NECESSARY)

The Magus is a single-driver, bottom-ported, stand-mounted loudspeaker with three choices of Lowther driver: the DX55 (\$3985/pair), A55 (\$4985/pair), or DX65 (\$5985/pair). The handmade, acoustically active cabinets feature a brushed, seven-layer, high-gloss varnish, and carefully curved front and side panels to avoid standing waves and comb-filtering effects. The speaker has a rated sensitivity of 98dB with the DX55 and A55 drivers, 100dB with the DX65. ST noted a detail, delicacy, definition, speed, and coherence that made the Magnus a perfect match for his flea-watt Sun SV-2A3 amplifier. "The sound was so alive that ordinary audio terms became irrelevant," he said. "Few speakers get Sam closer to the live event, assuming that the recording allows." Sold direct with a 30-day home trial. Matching stands add \$295/pair. Matching Clarison Silver speaker cables cost \$985/6ft and \$1485/10ft. (Vol.35 No.9)

WHARFEDALE JADE 3: \$1499/PAIR
(STANDS NECESSARY)

The three-way Jade 3 uses a 6.5" woofer made of a proprietary glass-fiber/carbon-fiber matrix; a 3" midrange driver of the same material, sandwiched with a thin layer of aluminum; and a 1" aluminum-dome tweeter in a sealed particleboard-and-plywood cabinet with curved sides and a claimed fundamental bass resonance of 44Hz. Used atop their purpose-made stands (\$599/pair), the Jade 3s impressed BJR in virtually every aspect of performance: "With every recording I tried, I could find nothing to criticize in the areas of tonal balance, detail resolution, soundstaging, transient articulation, or dynamic range." JA's measurements uncovered a sensitivity of 83.5dB—lower than the specified 86dB—but a "generally benign electrical phase angle." Apart from a primary tweeter-dome resonance peak that might be audible to younger listeners, JA praised the Wharfedale's "excellent measured performance." BJR gets the last 11 words: "Wharfedale's flawless—and remarkable—Jade 3 punches way beyond its price." Dedicated stands add \$599/pair. (Vol.38 No.1 WWW)

C (FULL-RANGE)

DIRECT ACOUSTICS SILENT SPEAKER II: \$898/PAIR

Designed by Winslow Burhoe and available by mail-order only, the two-way, floorstanding Silent Speaker II is a wide, rectangular box whose top panel is raked at an angle of about 22° and holds a 6.5" woofer and a 1" soft-dome tweeter. Available in modest black ash and with a dated, DIY appearance, the Silent Speaker II measures 22" H (front) by 25" H (rear) by 13.5" W by 9" D. Although particularly sensitive to associated electronics, the Silent Speaker II had outstanding bass and a coherent overall sound. "I could live with these speakers," decided JM. For

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optimal performance, they *must* be used with their grilles in place, he advised. "A very well-balanced design at an affordable price, with a totality of performance that exceeds the sum of its parts," praised JA. (Vol.34 Nos.6 & 7 WWW)

WHARFEDALE DIAMOND 10.7: \$1299/PAIR

Available in three handsome finishes (Blackwood, Cinnamon Cherry, Quilted Rosewood), the Diamond 10.7 is a compact (37.6" H by 8.7" W by 11.7" D) three-way, reflex-loaded floorstander. Its cabinet has curved sidewalls and a piano-black front baffle on which are mounted the four drive-units: a 1" soft-dome tweeter, a 2" dome midrange unit, and two 6.5" woven-Kevlar cone woofers. Though it lacked some high-frequency detail and extension, the Diamond 10.7 had a warm, rich midrange and deep, natural bass that made music especially involving, said BJR. "The Diamond 10.7 is an impressive speaker that provides many of the attributes of pricier floorstanders in an attractive, small-footprint cabinet at an accessible price," he concluded. Similarly, JA noted "excellent measured performance for the price." (Vol.36 No.10 WWW)

C (RESTRICTED LF)

ATC SCM7 V.3: \$1749/PAIR (STANDS NECESSARY)

ATC's entry-level model is a small (11.8" H by 7.9" W by 9" D), two-way, stand-mounted speaker with a 1" soft-dome tweeter and a 5" mid/woofer. Unlike previous ATC models, the SCM v.3 has side panels that curve toward the rear, and its drivers are now flush-mounted in a fully veneered front panel. The sealed cabinet is available in handsome cherry and black-ash veneers. Claimed specifications include a lowish 84dB sensitivity and a flat nominal impedance of 8 ohms. Though it lacked low-end impact and resolution, the SCM v.3 produced an engaging overall sound marked by pinpoint imaging, excellent detail retrieval, and well-extended highs, said JM. On the bench, JA observed sensitivity even lower than that specified by ATC: 82 vs 84dB/2.83V/m, redeemed somewhat by impedance and electrical phase-angle curves that describe a benign load. JA was impressed by the SCM7 v.3's measured performance overall, noting that this British minimonitor "will sound best when the listener sits relatively close to it." (Vol.37 Nos.2 & 4 WWW)

AUDIENCE CLAIRAUDIANT THE ONE: \$995/PAIR (STANDS NECESSARY)

The ClairAudient The One is a very small (7" H by 5.5" W by 7" D) desktop speaker with a single 3" titanium-alloy drive-unit loaded by a 4" rear-mounted passive radiator. It has a single pair of binding posts and is internally wired with Audience's Ohno continuous-cast monocrystal wire. Though they lacked ultimate bass extension and couldn't go very loud, the Ones had a revealing and involving overall sound, with superb resolution of detail, excellent dynamic contrasts, and subtle articulation of transients, said BJR. To achieve the most neutral balance, the speaker should be used in close proximity to a boundary, such as a desktop, advised JA. Class B, recommended BJR; JA demurs, feeling Class C is more appropriate. Matching stands add \$75/pair. (Vol.36 No.9 WWW)

AUDIOENGINE 5+: \$399/PAIR \$\$\$ ★ (STANDS NECESSARY)

The Audioengine 5 powered speakers come packed in attractive cloth drawstring bags, and include several convenient accessories: an AC power cable, miniplug interconnects in length of 2m, an RCA cable (2m), a 3.75m length of simple speaker cable, and a remote control. Each A5 cabinet is made of 25mm-thick MDF, measures 10" H by 7" W by 7.75" D, and houses a 20mm silk-dome tweeter and a 5" Kevlar-cone woofer. The left speaker enclosure contains a 50Wpc dual class-AB monolithic amplifier, as well as the power button, volume knob, iPod charging port, and IR window for the remote. Compared to the PSB Alpha B1, the Audioengine lacked some high-frequency detail and delicacy, but offered outstanding bass control, transparency, and drama, said SM. Price is for satin black and high-gloss white finishes; bamboo adds \$70. (Vol.34 No.5 WWW)

DALI ZENSOR 1: \$495/PAIR \$\$\$ (STANDS NECESSARY)

The Zensor 1 is a very small (10.7" H by 6.3" W by 8.6" D), two-way, rear-ported bookshelf design with a 25mm fabric-dome tweeter and a 5.25" pulp-cone woofer. Its MDF cabinet is available in light-walnut or black-ash vinyl; the front baffle is finished in high-gloss black or white lacquer. Though the Zensor 1's upper bass was sometimes "a bit thumpy," the speaker's overall sound was surprisingly detailed and natural, with sophisticated highs, a rich, warm midrange, and a remarkable sense of pacing, said BJR. "This attractive little baby sets a new benchmark in its class," he concluded. JA noted impressive measured performance. (Vol.35 No.7 WWW)

EMOTIVA AUDIO PRO AIRMOTIV 4S: \$299/PAIR \$\$\$ (STANDS NECESSARY)

Provisional rating. See BJR's review in this issue.

GOLDENEAR TECHNOLOGY AON 2: \$799.98/PAIR \$\$\$ (STANDS NECESSARY)

This small (12" H by 8" W by 10" D) two-way, stand-mounted loudspeaker has an unusual driver complement: a 1.06" by 1.31" High-Velocity Folded Ribbon tweeter, a 6" polypropylene-cone woofer, and two 6.5" side-mounted planar passive radiators. The cabinet is a truncated pyramid with a wraparound black grillecloth and a piano-gloss black topcap. Though it lacked some bottom-end slam, the Aon 2 had a coherent overall sound, with clean, well-extended highs, lightning-fast transients, and a warm, rich midrange, said BJR. "GoldenEar has produced a stunning achievement in the Aon 2, with strengths that are unusual for a bookshelf speaker of this size and price," he concluded. The Aon 2 revealed an upper-midrange peak on the test bench, but otherwise measured well for its price, said JA. (Vol.36 No.11 WWW)

OPERA MEZZA 2012: \$1495/PAIR (STANDS NECESSARY)

Made in Italy, the Opera Mezza 2012 is an attractive two-way minimonitor with wood-veneered side panels and a faux-leather front baffle. It uses a 5.5" treated-paper-cone mid/woofer from SEAS and a 1" Scan-Speak soft-dome tweeter. Though it seemed to struggle a bit with large-scale music played at high volumes, the Mezza 2012 combined a sweet midrange with a crisply articulated treble for a sound that best complemented chamber music and small-group jazz, said ST. (Vol.36 No.5)

PHASE TECHNOLOGY PC60 CA: \$1400/PAIR (STANDS NECESSARY)

A reissue, with new drivers and crossovers, of Phase Technology's classic PC-60 of the 1980s, the PC60 CA is a small (13.25" H) sealed-box loudspeaker with a 1" soft-dome tweeter and a 6.5" solid-piston woofer made from a trilaminate of Kevlar, glass fiber, and a material the company refers to as RPF. The PC60 CA's sensitivity and impedance are respectively specified as 87dB/W/m and 4 ohms, and the center frequency of its Absolute Phase Crossover—a design intended to preserve the drivers' optimum dispersion characteristics—is 2kHz. Used atop BJR's sand- and lead-shot-loaded Celestion Si stands, the Phase Techs impressed him with their "flawless articulation of transients," their "ability to render hall sound and high-level dynamic contrasts without strain," and a degree of "transparency in the lower midrange [that] made [them] a natural showcase" for some of his favorite jazz recordings—although the PC60 CAs were not shy about communicating the upper-midrange/lower-treble flaws of some recordings. Apart from uncovering a resonance problem in the speaker's crossover region that may contribute to its lack of grace with bright recordings, JA declared the PC60 CA "a well-engineered little speaker." (Vol.37 No.7 WWW)

PSB IMAGINE MINI: \$759/PAIR (STANDS NECESSARY)

Measuring just 9.25" H by 5.75" W by 8.3" D and weighing 6.5 lbs, the Mini is PSB's smallest, least expensive Imagine model. It marries the 1" ferrofluid-cooled, titanium-dome tweeter used in other Imagine models to a 4" clay/ceramic-filled polypropylene-cone woofer. The tiny cabinet, available in satin-finish wood veneer or high-gloss black or white (add \$70/pair), has a curved top panel and sidewalls; the baffle is finished in matte black. The Mini sacrificed ultimate loudness and low-frequency extension

for high-frequency purity, a clean midrange, and a wide, stable soundstage, said JA. The Mini's measured performance was "almost beyond reproach." The matching PFS-27 stands cost \$300/pair. Price is for Walnut, Dark Cherry, and Black Ash Veneers. High Gloss Black or High Gloss White adds \$70/pair. PWB-1 Wall Bracket is \$99. (Vol.35 No.8 WWW)

SONUS FABER VENERE 1.5: \$1198/PAIR (STANDS NECESSARY)

The Venere 1.5 is a two-way, front-vented, biwireable bookshelf speaker measuring 15.4" H by 8" W by 11.7" D and weighing 13.2 lbs. It uses a 1.25" silk-dome tweeter with a conical waveguide and a 6" Curv-cone mid/woofer. Like the larger Venere 2.5, the 1.5 has a beautifully finished, internally braced cabinet whose sidewalls curve around to meet a very narrow rear panel just wide enough to accommodate a staggered array of four multiway terminals. Though it lacked high-frequency sparkle and exhibited a slightly elevated upper bass, the Venere 1.5 produced a natural, dynamic, and involving overall sound, with a detailed midrange and delicate highs, said BJR. Price is for black or white high-gloss lacquer finish; real-wood walnut veneer adds \$300/pair. Matching stands add \$398/pair. Borderline Class B overall. (Vol.37 No.1 WWW)

SWISSONOR B.A.C.H. 8E: \$4995-\$5495/PAIR, DEPENDING ON FINISH (STANDS NECESSARY)

Made in Switzerland, the B.A.C.H. 8e is a high-sensitivity (94dB/W/m), bass-reflex design with a single 8" coaxial driver. The integral stands can be adjusted to fine-tune the reflex port. The B.A.C.H. 8e lacked deep bass, sounded a bit lively in the upper midrange, and was a bit rolled off in the treble, but nevertheless preserved the music's dynamics and impact, said ST, noting that the Swissonor has an appealing coherence due to the lack of a crossover. For special tastes, decided JA. (Vol.36 No.2)

TOTEM DREAMCATCHER: \$700/PAIR ★ (STANDS NECESSARY)

Designed and manufactured in Canada, the Dreamcatcher is a small (11.3" H by 5.1" W by 7.1" D, 5.5 lbs), two-way, rear-ported minimonitor with a 1" titanium-dome tweeter and a 4" long-throw woofer. Though its bass extension and high-level dynamic slam were limited, the Totem produced a clean, detailed midrange; pristine, extended highs; and lightning-fast transients, for a startling level of realism, said BJR. "Of all the speakers I've reviewed in the past 28 years, I have never enjoyed music more through anything else, regardless of price," he gushed. JA, however, was disappointed by the Dreamcatcher's measured performance, citing strong port resonances and elevated top octaves. Black Ash, Mahogany, Cherry, and White finishes available. (Vol.34 No.5 WWW)

D

APERION VERUS GRAND BOOKSHELF: \$699/PAIR (STANDS NECESSARY)

The Verus Grand Bookshelf is a two-way, bass-reflex, stand-mounted design with a 1" silk-dome tweeter and a 5" woven-Kevlar woofer with an aluminum phase plug. The beautifully finished cabinet features curved side panels and internal bracing to minimize standing waves. Fit and finish were outstanding. Though it lacked some high-level dynamic slam, the Aperion offered a well-balanced overall sound with airy highs, a detailed midrange, clean bass, and good sense of space, said BJR. JA noted superb measured performance. All Aperion products are offered with a 30-day money-back guarantee, free shipping, a 10-year warranty, and a trade-in program. (Vol.36 No.1 WWW)

AUDIOENGINE A2+: \$249/PAIR (STANDS NECESSARY)

See JA's review in this issue.

BOSTON ACOUSTICS A 25: \$298/PAIR ★ (STANDS NECESSARY)

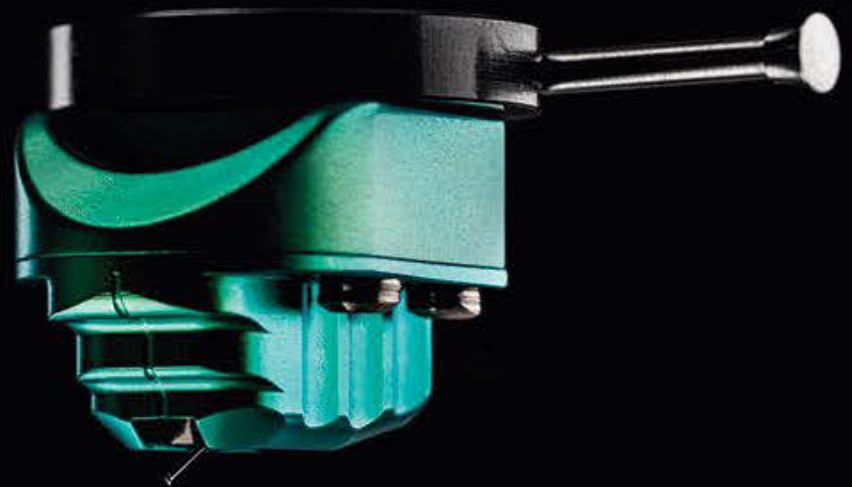
The two-way A 25 measures 10.7" H by 7.25" W by 8.9" D, weighs 10 lbs, and uses Boston's 1" Kortec soft-dome tweeter and a 5.25" mid/woofer with a cone of ceramic and glass-fiber polymer. It has scratch-resistant, high-gloss side panels; all other surfaces are covered in a textured veneer reminiscent of faux leather, giving the A

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25 a purposeful, no-nonsense look. Though it lacked the PSB Alpha B1's drama and scale, the A 25 offered a balanced, coherent sound with impressive top-to-bottom control and stable stereo imaging. "The A 25 had a fine way of balancing accuracy and musicality for an enriching and fatigue-free listening experience," said SM. JA noted excellent measured performance. (Vol.34 No.11, Vol.35 No.3 WWW)

DEFINITIVE TECHNOLOGY STUDIO MONITOR 55: \$598/PAIR (STANDS NECESSARY)

This two-way, biwirable, stand-mounted design uses a 1" aluminum-dome tweeter, a 6.5" BDSS cast-basket mid/woofer, and, instead of a reflex port, an unusual top-firing, 6" by 10" passive radiator. Fit and finish were superb. The SM55 lacked high-frequency delicacy and sophistication but produced a clean midrange, well-defined midbass, and outstanding high-level dynamics, said BJR. Though its test-bench results indicated weighty low frequencies for a bookshelf model, the SM55 was not as well balanced overall as the smaller and more affordable SM45, felt JA. (Vol.35 No.11 WWW)

DEFINITIVE TECHNOLOGY STUDIO MONITOR 45: \$398/PAIR (STANDS NECESSARY)

Made in China, the two-way, rear-ported 45 is the smallest and least expensive model in DefTech's revamped Studio-Monitor series. It measures 11.7" H by 6.75" W by 11.7" D and has a 1" aluminum-dome tweeter and a 5.25" mid/woofer, the latter utilizing DefTech's new Linear Response Waveguide for wide dispersion and smooth off-axis frequency response. The matte-black wood-grain enclosure has tapered side panels and a contoured, high-gloss baffle to minimize diffraction. Fit and finish were outstanding. Though they lacked some bass weight and impact, the DefTechs combined natural transient articulation, well-controlled lows, impressive dynamics, and stable stereo imaging for a compelling listening experience, said SM. High Class D, bordering on Class C. Other than its lively enclosure and two very strong port resonances, at 700 and 910Hz, the SM 45 measured very well for an inexpensive speaker, said JA. (Vol.35 Nos.8 & 10 WWW)

MUSIC HALL MARIMBA: \$349/PAIR (STANDS NECESSARY)

Music Hall's only loudspeaker is a small (11" H by 6.5" W by 8.75" D), two-way, reflex-loaded design with a 1" silk-dome tweeter and a 5.25" polypropylene-cone mid/woofer. The MDF cabinet is internally braced to minimize vibrations, has curved edges to reduce diffraction, and is finished in modest black vinyl. Though dynamically limited, the Marimbas were extremely room-friendly, with outstanding imaging and soundstaging abilities, said ST. "The Marimba is an astonishing little speaker," he concluded, "as long as you don't expect it to do too much." Compared with PSB's Alpha B1s, the Marimbas had more crisply articulated highs and produced smaller, more tightly focused images on a wider soundstage, said SM, concluding "Super fun, with great imaging and soundstaging, but a bit too hot on top." JA was impressed by the Marimba's measured performance. "An honest loudspeaker offering honest performance at a very competitive price," he said. (Vol.35 No.12; Vol.36 Nos.6 & 7 WWW)

PIONEER SP-BS22-LR: \$129.99/PAIR \$\$\$ (STANDS NECESSARY)

The SP-BS22-LR is a two-way, bass-reflex bookshelf model with a 1" soft-dome tweeter, a 4" woofer with a structured-surface cone, and a sophisticated six-element crossover network. Its cabinet has gently curved sidewalls and is finished in black wood-grain vinyl. The Pioneers lacked some extension on top and bottom, but had a rich midrange and exhibited excellent detail resolution, transient articulation, and reproduction of ambience, said BJR. Compared with the Music Hall Marimbas, the Pioneers produced fleshier images and smoother, gentler highs; compared with the PSB Alpha B1s, the Pioneers were more transparent and had better image focus but lacked some bass impact, said SM. (Vol.36 Nos.7 & 9 WWW)

POLK AUDIO RTi A3: \$399.95/PAIR (STANDS NECESSARY)

The two-way, stand-mounted RTi A3 measures 14.75" H

by 8.58" W by 14" D, has a 1" silk-dome tweeter and a 6.5" polymer-composite woofer, and is available in real-wood veneers of black ash or cherry. It employs Polk's Power Port, a system in which two ports work together to reduce noise and distortion for clean, powerful bass. Though the RTi A3's fast, detailed highs could be unforgiving of poorly recorded material, the speaker's muscularity, weight, and solidity complemented well-recorded rock music. Compared to the DefTech SM 45, the Polk produced a bigger, more aggressive overall sound, but lacked the DefTechs' transient articulation, detail, and delicate touch, said SM. Despite the Polk's lively cabinet, JA noted "excellent audio engineering at an affordable price." (Vol.35 Nos.7 & 8 WWW)

PSB ALPHA B1: \$299/PAIR \$\$\$ ★ (STANDS NECESSARY)

The unassuming B1, the latest version of PSB's best-selling Alpha speaker, has molded plastic front and rear baffles connected by an MDF sleeve, and combines a 5 1/4", injection-molded, polypropylene-cone woofer with a 3/4" ferrofluid-cooled, aluminum-dome tweeter, both sourced from India. Low-bass extension was limited, and the speaker's otherwise clean, clear bass tone became muddled at very high volumes. Though high frequencies were slightly veiled, the B1's midrange was superb. JA was most impressed by the Alpha's talent for orchestral music: "If you are a classical-music lover with a small room and an equally small budget, a pair of PSB's Alpha B1s is just what you need...Extraordinary value." Though the B1s lent more drama to bass and drums, they couldn't quite match the Paradigm Atom v.5's treble performance, felt WP. JA feels the PSB's treble to be more naturally balanced, however. One of SM's long-term references. Compared to the Wharfedale Diamond 10.1, the PSBs exhibited a more forward balance, occasional brightness in the mid-treble, grittier brass textures, and a slight lack of overall clarity, found SM. (Vol.30 Nos.5 & 9, Vol.34 No.4 WWW)

PSB ALPHA PS1: \$299/PAIR

The Alpha PS1 is a small (8" H by 4.5" W by 7" D), two-way, powered desktop loudspeaker with an attractive gloss-black cabinet. It has a 0.75" aluminum-dome tweeter and a 3.5" metallized polypropylene-cone woofer with an oversized magnet and rubber surround; a slotted rear port is tuned for enhanced bass response. The left-channel speaker contains a 20Wpc amplifier and provides several useful connections: a single pair of RCA inputs, a 3.5mm Aux input, a subwoofer output, a 5V USB power port for charging mobile devices or powering a WiFi dongle, and a 24V DC input. The PS1s produced a surprisingly large and full-bodied sound, with clean highs and an open, uncolored midrange, said SM, who bought the review samples. (Vol.36 No.7 WWW)

SJÖFN HIFI (THE CLUE): \$999/PAIR (STANDS NECESSARY)

A perennial attraction at audio shows, Sjöfn's idiosyncratic The Clue is a small, stand-mounted, reflex-loaded speaker designed to be placed near room boundaries. It has a 0.875" silk-dome tweeter and a 5.5" plastic-cone woofer, and boasts a sensitivity of 87dB/W/m and a nominal impedance of 6 ohms. Stands ranging in height from 19" to 22" are recommended. HR auditioned a variety of records through the Sjöfns, and had strong praise for their "smooth and seamless" upper mids and lower treble range: Their speed and definition were impressive. But an apparent discontinuity in The Clue's upper-bass response resulted in a lack of weight and body in many vocal and instrumental sounds. In the end, HR expressed frustration: "I couldn't find a way to really enjoy my listening time while The Clues were in the system." JA's measurements confirmed the speaker's specified sensitivity, but suggested that The Clue's nominal impedance went a bit lower than 6 ohms. (Vol.38 No.1 WWW)

TANNOY MERCURY V1: \$382/PAIR (STANDS NECESSARY)

Designed in the UK and made in China, the two-way, front-ported Mercury V1 measures 11.8" H by 6.7" W by 10" D, weighs 9.9 lbs, and has a 1" soft-dome tweeter and a 5.1" pulped paper-cone mid/woofer. The cabinet is available in handsome Dark Walnut and Sugar Maple finishes. Build

quality was excellent. Lacking some bass weight and impact, the Mercury V1 had a slightly polite overall sound with an especially sweet, sophisticated treble; a detailed, uncolored midrange; and nicely balanced, well-controlled bass, said SM. Other than an upper-midrange peak in its on-axis farfield response, the Mercury V1's measured performance was commendable, said JA. "I still miss these speakers," bemoans SM. (Vol.35 Nos.9, 10, & 11 WWW)

WHARFEDALE DIAMOND 10.1: \$349/PAIR ★ (STANDS NECESSARY)

The Diamond 10.1 is a simple, two-way, stand-mounted design with a 1" soft-dome tweeter, a 5" Kevlar-cone mid/bass driver, and two rear-firing ports. Its gorgeous cabinet is gracefully curved, widening at the center and tapering toward the rear to both minimize internal standing waves and enhance the speaker's fine appearance. The Diamond 10.1 had a relaxed, coherent overall sound, with a wide, deep soundstage, airy highs, a liquid midrange, and excellent low-level resolution. Compared to the PSB Alpha B1, the Wharfedale lacked transient speed but offered greater clarity and resolution, said SM. BJR was impressed by the Wharfedale's extended highs, detailed midrange, and clean bass. "The 10.1 presents extraordinary value for money," he concluded. Compared to the Pioneer SP-BS22-LR, the Wharfedale had a warmer overall sound with more delicate highs and a richer midrange, but lacked the Pioneers' image focus and clean attack transients, said SM. "The Wharfedale Diamond 10.1 remains my favorite affordable stand-mounted loudspeaker," he concluded. "For the price, I'm not sure you can do better." JA noted superb measured performance. (Vol.34 Nos.2, 4, & 10; Vol.36 No.10 WWW)

E

DAYTON AUDIO B652: \$39.80/PAIR (STANDS NECESSARY)

The least expensive loudspeaker *Stereophile* has ever reviewed, Dayton Audio's B652 is a very small (11.8" H by 7" W by 6.5" D), very light (5.8 lbs), two-way, sealed-cabinet design with a 0.6" ferrofluid-cooled polycarbonate-dome tweeter and a 6.5" polypropylene-cone mid/woofer. The simple MDF cabinet is clad in black vinyl and has a removable grille of black cloth. Though it lacked overall clarity, extension, and control, the B652 offered a surprisingly large soundstage, good image separation, and a very fine sense of momentum and flow, with no hint of temporal distortions, said SM. Given its low price, the B652's measured performance was "quite remarkable," said JA. Dayton Audio B652-AIR (\$59.80/pair) replaces the dome tweeter with a folded-ribbon unit and was also impressive. "Recommended for those looking for the least-expensive way to share our enthusiasm for recorded music," JA summed up. (Vol.36 No.1, original WWW; Vol.38 No.2, AIR WWW)

ENERGY CB-10: \$269.99/PAIR (STANDS NECESSARY)

The small (11.4" H by 7.1" W by 8.5" D), two-way CB-10 has a high-gloss black baffle, a modest cabinet veneered in Black Ash, and gold-plated five-way binding posts. It uses a 1" aluminum-dome tweeter and 5.5" woofer with a ribbed elliptical surround; a large rear-firing port has an internal diameter of 2" and flares out to 2.75". Though the CB-10 performed well with loud rock music, the speaker lacked precision, control, and clarity, especially in the bass and treble, said SM. The Energy's measured performance was dominated by a port resonance in the upper midrange and an adjacent peak in its on-axis response, said JA. (Vol.34 No.11, Vol.35 No.3 WWW)

URBAN FIDELITY LOUDSPEAKER: \$399/PAIR

Designed and made in Los Angeles and launched with the help of the Kickstarter crowdfunding website, the Urban Fidelity loudspeaker is a single-driver, crossover- and cabinet-free floorstander whose front panel features designs from independent visual artists. With its base in place, the speaker measures 41" H by 13" W by 13" D. The speaker's body is made from North American-sourced, formaldehyde-free wood, while the artwork is reproduced with water-based inks. The 8" drive-unit, made for UF by a US-based company, combines a low-frequency cone and

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uncolored...
natural"**

- John Atkinson, *Stereophile*



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LOUDSPEAKER SYSTEMS

SUBWOOFERS

high-frequency whizzer in a frame of cast aluminum. The review sample, featuring Liam Brazer's *Country* design, was gorgeous. While the UFs created an impressively large, stable soundstage with well-focused images and had a fast, clean overall sound, they were lean in the lower mid-range, lacked bass impact, and added to voices a "cupped-hands" coloration that sometimes detracted from his enjoyment of the music, said SM. (Vol.37 No.1 WWW)

K

**BOWERS & WILKINS 683S2, KEF BLADE 2,
MERIDIAN DSP7200, ECLIPSE TD 712Z MK.2.**

DELETIONS

Dayton Audio Sola Bluetooth Speaker and Paradigm Reference Studio 20 v.5 no longer available; Opera Cal-las replaced by new version not yet auditioned; Harbeth C7ES-3 and ProAc Tablette Anniversary not auditioned in a long time.

SUBWOOFERS

A

B&W DB1: \$4500

The DB1 is a powered subwoofer in a handsome sealed enclosure measuring 19.3" H by 18.1" W by 16.2" D and weighing 97 lbs. Its solid construction includes: two mechanically opposed 12" woofers separated by a partially open internal partition, 1"-thick walls of MDF with 3/4"-thick bracing panels to minimize vibrations, digital signal-processing circuits to run its menu-based control system, home automation capability, and a 1000W switching amplifier equalized to produce linear output. Also included are a calibration microphone, four connector cables, and a USB-connected soundcard for use with the DB1's Room Acoustics Compensation program. Setup was quick and easy. Though it lacked the pitch definition of JL Audio's Fathom f113, the DB1 blended seamlessly with LG's Quad electrostatics, and produced powerful deep bass and impressive room lock. "The B&W DB1 proved to be a real pocket rocket," he said. (Vol.35 No.2 WWW)

JL AUDIO FATHOM F113: \$4300 \$\$\$ ★

The f113 is a small, sealed cube featuring a 13" drive-unit with a prominent OverRoll surround that permits huge cone excursions. All controls and connections for JL Audio's Automatic Room Optimization are conveniently located across the front of the sub, beneath the removable grille. Setup was simple and sophisticated. "Small as it is," said KR, "the f113 makes a powerful and musical contribution to the bottom end, even in the context of an already full-range system." "Remarkably powerful and clean by any standards, it is all the more so considering its compact dimensions," he sums up. When passing his system's low-end signal to the f113 below 80Hz, KR also noted "a dramatic expansion of the entire soundstage." Though installing two f113s in his system required more care and time than LG had anticipated, the improvements in soundstaging and deep-bass reproduction were worth the effort. "My entire system achieved its best performance to date," he said, also noting that the JL Audio's Automatic Room Optimization circuit enabled him to tune out an annoying 50Hz mode in his room acoustics. (Vol.29 No.11, Vol.30 Nos.5 & 9 WWW)

JL AUDIO FATHOM F212: \$6700 ★

The ruggedly built Fathom f212 is a powered, sealed-box sub with two 12" cone woofers. It measures 32" H by 15" W by 20" D, weighs 220 lbs, and has an effective cabinet volume of 574 cubic inches. Like the smaller Fathom f113, the f212 provides an automatic internal room optimizer for single-band adjustments, but lacks a high-pass filter. With its clean, well-defined low bass and outstanding three-dimensionality and soundstaging performance, the f212 delivered the full intensity and emotional impact of music, said LG. "The Fathom f212 has raised the performance quality of my audio system, and my enjoyment of it, to much higher levels," he concluded. (Vol.33 No.4 WWW)

MARTINLOGAN 2X BALANCEDFORCE 212: \$3995

The two 12" aluminum-cone woofers of the 212 are mounted on opposite sides of their enclosure and operated in opposition to one another—an approach for which MartinLogan has coined the term BalancedForce. Power comes courtesy an internal pair of 850W class-D MOSFET amplifiers, themselves addressed with a choice of balanced and unbalanced connectors for left-channel, right-channel, and LFE (low-frequency effects) operation. Controls include continuously variable knobs for level, low-pass filter (30–80Hz), and phase (0–270°), plus an On/Off switch with a third choice for power-saving Auto mode, which detects an incoming signal and powers up the system accordingly. JI used two 140-lb BalancedForce 212s with his own MartinLogan Prodigy loudspeakers, and was impressed with the results—especially with the newly remastered Led Zep catalog: "Kick drum and bass were tuneful and heavy . . . yet there was no sense of bloat or bass 'effect,' and the tonal balance from top to bottom just felt right and real." The only performance negative: the audible clacking of the system in Auto mode. Perfect Bass Kit costs \$100. (Vol.37 No.10 WWW)

PARADIGM REFERENCE SUB 15: \$3499 ★

The SUB 15 has a 15" drive-unit with a 76mm-diameter voice-coil, and is rated for bass extension down to 12Hz. Considerably more attractive than the austere Paradigm Reference Servo-15, the SUB 15 has outrigger feet, gracefully tapered side panels, and weighs 114 lbs. It accepts balanced and unbalanced RCA input signals, and offers a trigger input, adjustable low-pass filter, phase adjustment, and a USB port for control of its equalizer. Compared to the Servo-15, the SUB 15 produced a flatter, more extended bass response with a smoother upper end, allowing it to more readily "disappear" as a discrete sound source. "The SUB 15 offers all the powerful bass and extension needed for any music and, indeed, for home theater, unless you're a bass maniac," said Kal. Add \$300 for Piano Black finish. (Vol.33 No.1 WWW)

REVEL ULTIMA RHYTHM2: \$10,000

How does one approach a subwoofer that weighs just under 200 lbs, has an 18" cast-frame woofer with dual 4" voice coils, is driven by an internal pair of 1000W class-D amplifiers, and outsizes, by nearly 3 cubic feet, its manufacturer's previous flagship model? With the utmost respect—as did LG when he closed in on the stygian, stentorian, and altogether big Revel sub. His opinion: "The Revel Ultima Rhythm2's musicality and power are exceptional, with a unique ability to deliver a powerful performance in a large listening room. Its deep bass has tremendous weight and slam, yet can turn on a dime." LG also praised the Revel's brace of manual user controls and the woofer's user-installable automatic Low Frequency Optimization (LFO) program, but chafed slightly at having to download the software, the user manual, and the associated test signals: "For this nosebleed price, one could argue that Revel should include a printed LFO instruction manual, a USB cable, and an iTestMic, if not an individual optimization by [the designer]." (Vol.38 No.2 WWW)

VELODYNE DD-18+: \$5799

The DD-18+ is a powered, sealed-box subwoofer; its 18" forward-firing driver has a fiberglass Rohacell-laminate cone, a 3" voice-coil, and a 39.7-lb magnet. Compared to the original DD-18, the 18+ is 6.5" deeper, 19 lbs heavier, has 28% more internal volume, uses a more efficient amplifier, and features strongly tapered side panels. In addition, the DD-18+'s equalization software provides automated room compensation and controls drive-unit distortion using a servo-loop accelerometer. Despite a daunting number of features, controls, and options, setup was simple. The DD-18+ played the deepest bass passages with minimal distortion, low coloration, and outstanding pitch definition, said LG. "Solid Class A," he concluded. (original version, Vol.27 No.6 WWW; Vol.36 No.3 WWW)

B

BRYSTON 10B-SUB CROSSOVER: \$3595 ★

The 10B features three balanced configurations—stereo two-way, monophonic two-way, and monophonic three-way—and proved extraordinarily versatile in managing

BOOKS & COMPUTER SOFTWARE

crossover slopes and frequencies. LG heard no electronic edginess and noted only the slightest loss in soundstage depth. "I found the 10B-SUB's sound clear, transparent, and neutral—as good as I've ever heard from an outboard crossover." (Vol.18 No.5, Vol.28 No.11 WWW)

SVS SB13-ULTRA: \$1599.99

Weighing less than 100 lbs—a noteworthy accomplishment for a good subwoofer, per LG—the sealed-box SB13-Ultra is a compact (17.4") cube containing a 13.5" ferrite-magnet driver and a 1000W Sledge class-D amplifier. The SB13-Ultra lacks a remote control, offering instead a single-knob Integrated Function Controller next to its small LCD screen and balanced (XLR) and unbalanced (RCA) inputs and outputs. SV Sound offers, on their website, an automated setup advisor (called Merlin) that LG found helpful in integrating the sub with his Quad ESK-989 electrostatic panels. His verdict: "The combination of Quad ESL-989s and SVS SB13-Ultra rendered clean, dense, fast response for many different instruments, including kick and bass drum, synthesizer, and or timpani." LG concluded: "In its price range, it's the best subwoofer I've heard." The SB13-Ultra is sold direct from the Girard, Ohio, factory with a 45-day home-trial period and a money-back guarantee. (Vol.38 No.1 WWW)

Editor's Note: There are no Class C subwoofers listed.

D

PSB SUBSERIES 125: \$449

The SubSeries 125 (originally called SubSeries 1) is a front-ported, bass-reflex design with an 8" polypropylene-cone driver and a 110W, class-A/B BASH power amplifier. It has a claimed frequency range of 36–150Hz, measures 13.25" H by 9.625" W by 14.5" D, weighs 23 lbs, and has a black vinyl finish. There are front-panel Volume and Crossover controls and a rear-panel Phase switch. Setup was simple. With the SubSeries 1 in his system, SM noted a wider, deeper soundstage and tight, musical bass. As SM's review went to press, PSB announced a replacement for the SubSeries 1: The SubSeries 125 shares its predecessor's simple look and controls, but has a more powerful (125W) amplifier; the price remains the same. (Vol.36 No.4 WWW)

PSB SUBSERIES 100: \$249

Designed to complement PSB's Alpha PS1 powered desktop loudspeakers, the SubSeries 100 miniature subwoofer measures just 6 3/8" W by 6 3/8" H by 7 7/8" D, and has an attractive high-gloss black finish. The sealed-box sub includes a 50W class-D amplifier and a 5 1/4" drive-unit designed to maximize bass extension while minimizing distortion. Volume, Crossover, and Phase controls, along with a single pair of RCA inputs, are provided on the tidy rear panel. Setup was simple; the sub partnered seamlessly with SM's Alpha PS1s, showing no evidence whatsoever of discontinuities between the high and low frequencies. In addition to clean, well-extended bass, the SubSeries 100 provided improved senses of timing and touch, better image focus, deeper silences, and more dramatic climaxes, said SM. Can be purchased with PSB's Alpha PS1 loudspeakers, as the Alpha 1-100 system, for \$499.99—a savings of \$50. (Vol.37 No.3 WWW)

K

TANNOY TS2.

BOOKS & COMPUTER SOFTWARE

AMARRA SOFTWARE: \$89.99 ★

The luxurious-sounding Amarra program (Mac only and in v2.2.3 at the time of the review) offers memory play, user-adjustable equalization, full compatibility with native FLAC files, a handy switch for comparing Amarra playback with iTunes, and a Playlist Mode that lets users bypass the iTunes interface altogether. Amarra had a naturally detailed and consistently involving sound with clean, extended trebles and a deep, wide soundstage, said AD. A free, 14-day trial version can be downloaded from www.amarraaudio.com. Amarra HiFi Music Player (the replace-

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M O O N

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MUSICAL ECSTASY

ment for Junior) costs \$49.99 and is an entry-level music player for use with iTunes. (Vol.34 No.7 WWW)

DEREMOTE: \$4.99

Available from the Apple Store, this iPhone/iPad App provides remote control of LAN-connected Denon and Marantz A/V receivers. Versatile screen menus allow the user to see and control zones, inputs, channels, and various audio, video, and Audyssey options. A navigation menu offers management of external sources, such as USB- and Ethernet-streamed files, and displays associated cover art. "Anyone who has a compatible Marantz or Denon device and an iPad or iPhone should also have DeRemote," said KR. (Vol.36 No.7 WWW)

CHANNEL D PURE MUSIC SOFTWARE: \$129 ★

Pure Music (Mac only) can play sampling rates of up to twice the 192kHz limit of Amarra and Decibel. Like those programs, Pure Music (Mac only) offers memory play, automatic sampling-rate changes, and full compatibility with native FLAC files and in its latest version, DSD files. Going from iTunes to Pure Music, the sonic improvement was modest but worthwhile, with cleaner trebles and improved pitch certainty. Compared with the less expensive Decibel, however, Pure Music lacked some openness and clarity, decided AD. Using Pure Music in its Memory Play and "Hog Mode" settings for optimal sound quality resulted in a wider soundstage and greater sense of ease, said JA. A free, 15-day trial version can be downloaded from www.channel-d.com. Included with Channel D's Pure Vinyl Version 3.0. (Vol.33 No.8; Vol.34 Nos.7 & 9 WWW)

CHANNEL D PURE VINYL LP

RIPPING SOFTWARE: \$299 ★

Used with a microphone preamp or non-RIAA phono preamp, Channel D's Pure Vinyl digitizes vinyl LPs at 24-bit/192kHz resolution and applies the RIAA or other EQ curves in the digital domain, where there's no inter-channel phase shift, capacitor distortion, additional noise, or component variability. Record mode allows the user to apply over 50 EQ curves or create custom EQ settings; Editor mode allows the user to insert track breaks or remove surface noise. CDs made with Pure Vinyl sounded "much better" than those made with the Alesis Masterlink, said MF. Compared to the original LPs, the digitized versions lacked a touch of body but sounded "very analog-like." Compatible only with Apple Macintosh computers. Version 3.0 includes Channel D's Pure Music front-end program for iTunes. "Pure Vinyl will change the musical lives of collectors with large collections of pre-1954 discs," said MF. (Vol.32 No.3; Ver. 3.0, Vol.33 No.8 WWW)

DECIBEL SOFTWARE: \$33 \$\$\$ ★

Unlike Pure Music and Amarra, Decibel (Mac only and in v1.2.4 at the time of the review) can be used without launching iTunes at all. Memory play and other options are selectable via pull-down menus, FLAC files are decoded natively, and sampling-rate changes are handled automatically. Its graphical user interface is plain and simple, and its playback engine accessed the music files in AD's iTunes library without a problem. Decibel removed haze and artifice from the highest treble range, and cleaned up the sound overall, making pitches and timbral colors clearer and more distinct. Compared to Pure Music, Decibel sounded clearer and more open. "The best \$33 I ever spent," decided AD. A free, limited-time demo can be downloaded from www.sbooth.org. Requires Mac OS10.6. (Vol.34 Nos.7 & 9 WWW)

DIGITAL RECORDINGS AUDIO-CD HEARING

TEST: \$49.95 ★

This system permits useful evaluation of hearing thresholds with only a CD player and a pair of headphones. KR reported that it reveals any significant gaps in your hearing. (His own results were "close to ideal, especially con-

sidering my age and usual haunts." Whew.) "Ever wonder why others don't hear what you do? This simple test will tell you, even though you may not like the answer." Such a card. (Vol.23 No.1 WWW)

ELAC TECHNISCHE SOFTWARE CARA REL 2.2

PLUS PROGRAM: \$74.95 ★

To use CARA, one must create a full three-dimensional model of the listening room, using the program's CARA-CAD module. KR: "By 'full,' I mean that all room dimensions and surfaces are defined: doors, windows, furniture, soffits, bays, etc." Kal found it time-effective to reduce the complexity of the model (eg, remove smaller objects) and the order of reflections (3-4) for the early iterations, at which point the number of possible speaker and user positions is large—an 800MHz Pentium III can take 48 hours or more to run even *that* modest a set of variables. "Several simplified runs will tell you which arrangements deserve more investigation. After that, you can limit the range of positions for speakers and listener while progressively increasing the number of reflections and adding more feature details, as a confirmation of the optimum arrangement." Checking predictions against the results with ETF or with TacT RCS measurements confirmed CARA's conclusions to an amazing degree. KR: "Wouldn't you like to know how well a speaker might work in your room before you buy it? I would." Runs under Windows. Version reviewed was 2.0; 2009 version is 2.2. Web: www.cara.de. (Vol.24 No.9 WWW)

FEICKERT ADJUST+ COMPUTERIZED TONEARM

ALIGNMENT PROGRAM: \$350 ★

The Adjust+ software, sold direct from Germany, is Windows-compatible (Feickert recommends a 2GHz Intel Premium 4 or AMD Athlon 2000+ processor) and requires a soundcard capable of 24-bit/96kHz analog-to-digital conversion or an outboard USB box. Though Mikey had trouble with its instruction manual, he used Adjust+ to set his tonearm's azimuth, calculate his etable's speed accuracy, measure wow and flutter, and determine the frequency response of his cartridge. "It's a powerful tool in the analog-setup arsenal, and when its manual has been rewritten in clear English, I'll be able to highly recommend it," he concluded. Only available from the manufacturer's website in Germany. Pro version with more features is available for \$525; standard version can be upgraded. (Vol.31 No.10)

XTZ ROOM ANALYZER II PRO: \$360

The XTZ Room Analyzer II Pro comes as a kit in a nice aluminum case that includes a microphone, stand, and tripod adjusters; a USB preamp with XLR connections; two 20' XLR cables; a tabletop tripod; and a USB memory stick. The II Pro software includes everything from the original Room Analyzer and adds a sophisticated SPL meter, a delay alignment function, and frequency and room-analysis functions. Hardware improvements include a dedicated USB preamplifier and a more accurate microphone. "XTZ remains the least expensive, easiest-to-use package of software and hardware for acoustical analysis of a room and system," said KR, adding that "with higher resolution and more features than its predecessors, it has supplanted them as my Go-To acoustic measurement set." (Vol.35 No.5 WWW; earlier version was reviewed in Vol.31 No.11 and Vol.32 No.11 WWW)

K

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To Save a Soul Like Mine

A new tribute record pays homage to the devotion and disasters of **Blind Willie Johnson**

by **ROBERT BAIRD**



HE

e is easily among the most accomplished and influential slide-guitar players ever to put a ring of glass or metal around his finger. In 1977, on the golden record carried by the space probe Voyager, alongside the first movement of Beethoven's Symphony 5 and recordings of "footsteps, heartbeat, and laughter," his greatest song, "Dark Was the Night, Cold Was the Ground" went off to represent humanity to the stars.

His terrestrial legacy remains hidden in plain sight: Led Zeppelin, Eric Clapton,

and Bob Dylan have all done versions of his songs, which themselves are versions of even older gospel tunes. Strangest of all, in an age teeming with aspiring documentary filmmakers and social-media busybodies, his story is still mostly untold. Other than blues nuts and those few musicians with a reverence for music history, such as Jack White, few people know his name, let alone his music. Books, magazine articles—even the much-praised PBS series *The Blues*, produced by Martin Scorsese—couldn't find the truth of such mundane matters as where he was born, what killed him, or where his body is buried.

Now, along comes a tribute record that encourages listeners to find Blind Willie Johnson through his music, not the unknowable facts. *God Don't Never Change: The Songs of Blind Willie Johnson* is the brainchild of one Jeffrey Gaskill, a longtime concert promoter and music marketer in the northeast US. With a roster of artists that includes Rickie Lee Jones, the Blind Boys of Alabama, Lucinda Williams, and Tom Waits, the recording is a multi-year project that has undoubtedly taken thousands of e-mails and phone calls, prolonged negotiations, and patience beyond imagination—which surely means Gaskill is possessed or, at the very least, a blues zealot.

Yet when I meet him in a bar in Brooklyn, where he lives when he's not in

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western Massachusetts, where he grew up, Gaskill is neither wild-eyed nor a resident of dreamland. He tells me that the album will be released “sometime in 2015,” and was funded by \$125,000 raised in 32 days in fall 2013 via a Kickstarter campaign, all in donations that ranged from \$10 to \$5000. The tunes were recorded all over the US and sent as digital files to Gaskill. It will eventually be available as MP3, FLAC, and Apple Lossless downloads, as well as on CD and 180gm LPs. Devouring a ham sandwich as we talk, Gaskill is understandably a little numb to the process. Clearly wary of the press and experienced at holding his cards close to his vest, he projects the reticence that such undertakings may need to succeed.

“It will be interesting to see what I think after it’s done,” he admits. “[In the future,] I might look for things that are a little easier to execute. [Big smile]. But it is important to me. I don’t know . . . it’s my life’s work. I’ll leave something behind. You gotta serve somebody, and I got the songs of Blind Willie Johnson.”

Robert Johnson’s fame rests on 29 songs. The other Johnson also recorded 29, some of which—“Nobody’s Fault But Mine” (covered by Led Zeppelin), and “Jesus Make Up My Dying Bed” (the basis for Dylan’s “In My Time of Dying”)—have entered the rock canon.

In a rambling, semi-intelligible video testimonial for the project at Blindwilliejohnson.com, the North Mississippi All-Stars’ Luther Dickinson, who contributed a version of “Bye and Bye I’m Goin’ to See the King,” says that his family, headed by his late father, the great keyboard player Jim Dickinson, have had a close relationship with Blind Willie since his father and Ry Cooder used “Dark Was the Night, Cold Was the Ground” in the soundtrack of the Wim Wenders film *Paris, Texas*. The younger Dickinson goes on to say that it was really guitarist Corey Harris who turned him on to the song, which he plays on *God Don’t Never Change*. “That one song is a whole other universe,” he says.

More coherent in their video update, Derek Trucks and his wife, Susan Tedeschi, obviously put some thought into their cover of “Keep Your Lamp Trimmed and Burning.” “There is something so honest about his recordings that I didn’t really want to overthink it,” Trucks says, sitting on a couch with Tedeschi. “I’ve listened to them enough over the years—it wasn’t like I had to jump in and totally learn it. It’s a high bar, when you’re talking about Blind



Willie and you’re picking up an acoustic guitar and playing slide. You don’t want to totally cop it, but you want to get it right.”

“When I heard it, it’s so haunting,” Tedeschi says, “and it really struck a note with me. I thought, ‘Wow, I could really relate to that,’ with Derek’s slide playing and my singing, and how we sometimes go off of each other.”

“That gospel influence was our biggest connection in the beginning,” says Trucks, smiling and pointing to his wife. “Just the fact that she was wearing out Mahalia Jackson records and things like that was high on my list of the things that got me. [Grin].”

“I think the one thing a lot of people miss with Blind Willie is how amazing the songs were, the lyrics, and how important the approach was. With a lot of other stuff, I don’t know if I ever cared to listen to the lyrics. But with his stuff, it’s the whole package. The moans in the right place, the slides in the right place, the feel of the room and within the song itself—you can tell none of it was thrown off. Everything was important.”

“And they’re almost secretive, like some of them they have hidden meanings,” Tedeschi says. “Some of the lyrics are very traditional for the time, but also maybe were very personal to him and how he was raised.”

According to his death certificate, Willie Johnson was born in Independence, Texas, on January 22, 1897, and spent most of his life around the central Texas town of Marlin. If the legends are to be believed, he was not the product of model parenting. When Johnson was five, his father and stepmother got into an argument and his stepmother threw lye—presumably at the father, or possibly at the child, in revenge for being beaten by the father. Either way, the lye landed in young Willie’s eyes and blinded him. On Blindwilliejohnson.com, in an article

from the *Waco Tribune Herald*, Austin-based guitar player Steve James said, “Central Texas was a cradle of the blues. The Brazos and Trinity basins are as important as the Mississippi Delta in the development of the blues.”

Around 1926, Johnson married a woman from Marlin, Willie B. Harris, who appears to be the female voice on some of his recordings, and possibly was the mother of at least one of his children. Later, he may or may not have married another woman, Angeline, who, after his death, claimed to be his wife. Between 1927 and 1930 he recorded 30 tracks (29 songs) for Columbia Records in sessions in New Orleans, Dallas, and Atlanta. Despite his rough voice, the records became best-sellers (15,000 copies) in the “race music” category.

In the fall of 1945, at the presumed age of 48, while living in Beaumont, Texas, in the ruins of his house, which had partially burned down, Johnson contracted malaria or pneumonia and died. According to various sources, and in an echo of the Bessie Smith legend, he was taken to a local hospital that refused to treat him because he was black, or unable to pay, or blind—or perhaps all three, or none of the above. Maybe he was never taken to a hospital at all. His death certificate lists, as contributing factors, “syphilis and blindness.”

When it comes to tribute albums, Gaskill has been here before. He produced *Gotta Serve Somebody: The Gospel Songs of Bob Dylan*, released by Columbia in 2003. He started out in music in the 1980s, promoting shows by the likes of Bonnie Raitt, Hot Tuna, and Nanci Griffith in an old vaudeville theater in Great Barrington, Massachusetts. Under the banner of his company, Burning Rose Productions, he went on to do shows in larger Northeastern venues, before moving on to work at Central Park Summerstage and Entertainment Marketing Communications Inc. EMCI pioneered some of the first sponsorship deals in music, pairing the Rolling Stones and Jovan, Elton John and Citibank, and Michael Jackson and Pepsi. *Gotta Serve Somebody*, which Gaskill funded independently, focused on songs from Dylan’s overtly religious period, from 1979 to 1981, featured several new tracks Dylan cut with Mavis Staples. It was nominated for two Grammys. By the time Gaskill had decided on his next project, a tribute to an obscure slide-guitar evangelist, things in the music business had changed.

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bels, and there was all kinds of interest,” he says through bites of the sandwich. “There was lots of interest, but nobody could follow through on it. ‘What a great project. Oh man, I really want to do it, but we just can’t do it.’ I did not foresee the implosion of the industry. Trying to do a project like this during that time period was just not feasible, hence the Kickstarter.”

“I guess I’d been watching crowdfunding since its inception and wondering if that was a viable option. A part of the process of making this record was floating the idea out there to the artists who were interested in doing the project and ultimately saying, ‘Hey, would you be willing to do this as a crowdfunded campaign?’ In the time it took to do that, crowdfunding became more mainstream.”

One of the first requirements was a trip to Marlin. “There’s a lot of attention that’s focused on Beaumont, because that’s where he was when he died,” Gaskill says. “But for all intents and purposes he grew up in the Marlin area, and he spent the majority of his life and his recording period in that area. Johnson’s wife, Willie B. Harris, died in 1979. And his daughter, Sam Fay Kelly, died a few years ago. His house in Marlin had fallen into ill repair and was sitting there rotting. It was a relic worth saving, and there were some efforts in Marlin to save the house that failed, but somewhere along the line I came up with the idea of making cigar-box guitars.”

Assisted by a woman in Marlin, Gaskill obtained pieces of wood from the house and had them made into cigar-box guitars—Johnson’s first instrument. Gaskill admits that the idea is not entirely original—he’d heard of a guitar made from the wood of a cabin Muddy Waters had once lived in—but it did make for nice premiums to give to large donors. “It was cruddy, old, dirty, nasty wood that, when put through a mill, became, like, beautiful Southern pine, and ten cigar-box guitars were made out of it by a company in Connecticut called String Tinkers.”

Gaskill calmly denies that, as happens in many tribute projects, there was horse trading or problems in choosing repertoire. “I get really attached to the thought of an artist doing a specific song. It’s a pretty long process and a lot of listening. I guess I try and get into the artist’s head, and if this would be something they’d be interested in. I look for something in their music over their career. Or it could be a comment in an



Rickie Lee Jones and Jeffrey Gaskill.

interview, something that says they’re the person for this song. I like to think I’m able to give artists an opportunity to do something exciting and creative that they wouldn’t ordinarily get to do.”

THE HEART AND SOUL, I GUESS, OF THE IDEA OF THE BLUES IS THAT IT’S EVERYMAN’S CRY, RIGHT?

What must have been exciting, at least to this writer’s fanboy imagination, was getting Tom Waits to cut “John the Revelator” and “Soul of a Man.” Gaskill shrugs. “It was a few years of e-mails. It was kind of like communicating with J.D. Salinger, on some level. I talked to his wife [Kathleen Brennan] a couple times on the phone, and they were excited about it. He’s a big Blind Willie Johnson fan. This was something he really wanted to do, obviously. This was something he had a need to do, I would guess, but I have not had a conversation with him directly.”

For some of the artists, recording Johnson’s songs seems to have been a revelatory experience. In her video clip on blindwilliejohnson.com, Rickie Lee Jones, who sings “Dark Was the Night, Cold Was the Ground,” is eloquent. “I said to the recording engineer, ‘I shouldn’t be doing the blues,’ and he said, ‘That’s all you do.’ Though informed, you drift away. The heart and soul, I guess, of the idea of the blues is

that it’s everyman’s cry, right? And so I found, like, a hymnal, and I looked up some old lyrics to ‘Dark Was the Night,’ and when Christ says, ‘Please take this cup from me,’ when he’s human—‘But if not, alright, I’m content to drink it then.’ I guess there’s hardly a day I don’t feel that way: Please take this bitter cup—but if not, I’ll do what you ask, I’m yours. So I understood that very well. From my experience, to be given carte blanche to take that recording and go where . . . I think I’ll be singing that song in my shows. It’s part of me now.”

Despite the cool façade, it’s very much a part of Gaskill as well. Intrigued by his dispassionate demeanor, and understanding that *God Don’t Never Change* is not gonna sell a million copies and make him rich, I gotta ask directly: why’s he doing this?

“Well, because he’s so great. He’s undiscovered and needs to be discovered. And because it was a very similar project to *Gotta Serve Somebody*. Blind Willie Johnson’s body of work is really similar to Dylan’s body of work. I see a real kinship between the two. I see Willie Johnson’s 30 recordings and Bob Dylan’s gospel period as both lasting bodies of work with a similar worldview. Willie Johnson was a seminal artist who created a new sound by marrying blues with gospel. Bob Dylan’s gospel period married rock with gospel. *Gotta Serve Somebody: The Gospel Songs of Bob Dylan* returned Dylan’s songs to their roots with black gospel interpretations, while *God Don’t Never Change: The Songs of Blind Willie Johnson* is, for the most part, the inverse, with interpretations by contemporary white artists that have evolved from the same musical tradition.

“[Projects like this,] It’s not for the faint of heart. It’s verging on insanity. It’s more patience than anything. There are a lot of demands on artists of this stature. Trying to get them in the studio—it’s a lot of sitting back, waiting for that opportunity, waiting for the moment to be right. You don’t just want somebody to go in and do the song. The artist has to think about it and digest the song.

“It’s a work of art. It’s not a commercial endeavor. But I think that it’s something that people will respond to, the way they respond to all good music. People need to be aware of the roots. I mean, he’s incredibly seminal. And his message is, too. Just a very basic, big message.” Gaskill smiles—perhaps at his own persistence.

And the message is?

“It’s nobody’s fault but mine.” ■

JOHN ATKINSON

Pono PonoPlayer

PORTABLE MUSIC PLAYER

In the 1960s, musical giants walked the earth. I vividly remember the first time I heard a song called “Expecting to Fly,” in a UK record store. The vast, reverberation-drenched sound was extraordinary; the frail, shaky alto voice of the singer riveting.

“Who is *that*?” I asked the clerk.

“It’s a new American band, Buffalo Springfield . . . but they’ve already broken up.”

I bought all I could find of the Springfield, which wasn’t much, and learned that the singer and composer of “Expecting to Fly” was a Canadian, Neil Young. Young’s first solo album, released in 1969, had more of that magnificent, spacey sound, courtesy of arranger Jack Nitzsche; I bought the LP on the first day of release and, over the next few months, almost wore the grooves out. But Young set a precedent for his career by disowning that album; since then he has continually reinvented himself musically, sometimes even before the paint was dry on the current incarnation.

The Loner

Young’s disdain for CD sound is well known, but it still came as a surprise in 2013 to learn that he was backing high-resolution digital—in the forms of a portable device, the PonoPlayer, and a download site, PonoMusic, which would feature a proprietary file format. Development of the player was to be financed with a Kickstarter crowdfunding campaign, which ended up raising \$6.2 million. Details of the hardware and software were sparse, but we learned more when PonoMusic was launched at the 2014 South by South West Festival.¹ “Our machine is maximized by Ayre Acoustics to be the best it can be for what it is,” said Young. “And it’s sized appropriately to hold a couple of key components. We do one thing and we do one thing well, and that’s make a great-sounding player, and supply the best-sounding files possible of the record, exactly the way the artist made it.”

At the 2014 Consumer Electronics Show, it was rumored that PonoMusic’s file format was to be sourced from

England’s Meridian Audio, but it was announced at SXSW that music would be offered in the popular lossless FLAC format at sample rates up to 192kHz and with a 24-bit word length. Some skeptical writers have proclaimed that releasing music in high resolution is unnecessary. On the Gizmodo site, for example, one Mario Aguilar said that people shouldn’t buy what Neil Young was selling, proclaiming, “to the human ear, audio sampled above 44.1 kHz/16-bit is inaudibly different.”² Later, it emerged that Aguilar had never actually heard high-resolution files through the PonoPlayer, and had based his skepticism on the largely-discredited 2007 AES paper by E. Brad Meyer and David Moran.

Then, when the PonoMusic website was launched at the end of 2014, advertising that it had the “Highest resolution music available for over two million tracks and growing,” it became apparent that the majority of the music on offer was standard-resolution CD quality. Nevertheless, with our experience of true high-resolution playback, we didn’t see why the Pono project wouldn’t be successful. As Jason Victor Serinus reported in his December 2014 “As We See It,”³ “Neil Young didn’t manage to raise \$6.2 million for his Pono system simply because he was a rock idol; he succeeded because he promised people what their hearts and souls cry out for: better-sounding musical playback.”

After the Gold Rush

In late January, Michael Lavorgna reviewed, for our sister site AudioStream.com, a sample of the PonoPlayer he had purchased during the Kickstarter campaign.⁴ I refer you

1 See Robert Baird’s report at www.stereophile.com/content/neil-youngs-pono-music-launches-sxsw-2014.

2 See <http://gizmodo.com/dont-buy-what-neil-young-is-selling-1678446860>, Michael Fremer’s response at <http://tinyurl.com/klnoh4p>, and Michael Lavorgna’s more considered comments at www.audiostream.com/content/high-resolution-audio-elitist.

3 See www.stereophile.com/content/thinking-outside-niche.

4 See www.audiostream.com/content/pono-player.

SPECIFICATIONS

Description Portable music player with 2.5" color touchscreen. Compatible file formats: FLAC ALAC, WAV, AIFF, AAC (unprotected), MP3. Compatible sample rates: up to 192kHz. Compatible bit depths: 16–24. RAM: 64GB internal, 128GB total;

supports microSD cards. Power supply: 2950mAh Li-ion rechargeable battery. Supplied accessories: AC universal adapter (100–240V), USB-Micro USB cable, 64GB SanDisk microSD card. Firmware: v1.0.4.

Dimensions 5" (130mm) H by 2" (51mm) W by 1" (25.4mm) D. Weight: 4.6 oz (130gm).

Finishes Matte yellow, black.

Serial number of unit reviewed 14420711.

Price \$399. Approximate number of dealers: 26 as

of January 2015; also sold direct.

Manufacturer Pono, 1501 Mariposa Street, Suite 312, San Francisco, CA 94107. Tel: (800) 611-0580. Fax: (415) 638-6133. Web: <https://ponomusic.force.com/>.





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to that review for a detailed description, but in brief, the PonoPlayer has a triangular, Toblerone-bar shape, with a small color touchscreen at one end of its front panel. This screen's orientation rotates: no matter how you hold the player, the images are always right-side up. Adjacent to the screen are three touchbuttons, labeled "+," "O," and "-." The first and third buttons adjust the playback volume, and wake the screen from sleep. The center button acts as both a Pause control and as access to the settings menus; longer presses put the player in Sleep mode, and power it on or off. All other functions are accessed by touching and swiping the screen in a manner that will be unfamiliar only to those who haven't used a smartphone.

On one triangular endplate are two 3.5mm stereo jacks, labeled Line and Headphone, but the mode in which these are used can be adjusted from the Settings menu. Between the jacks is a blue LED that illuminates when a file downloaded from PonoMusic World is played, in order to assure the listener of the file's provenance. At the other triangular end of the player are a micro-USB port and a triangular door, the latter allowing you to insert an auxiliary 64GB microSD card, to expand the Pono's 64GB internal memory to 128GB.

Audio files can be loaded onto the PonoPlayer using the PonoMusic World desktop application, developed by JRiver and available for Windows and MacOS. Files can also be transferred to the player as a USB storage device by dragging and dropping them in the usual way. (When you connect the PonoPlayer to your computer, the player's internal memory and its microSD card appear as separate drives on your desktop.) I installed PonoMusic World 20.0.50 on my

Audio files can be loaded onto the PonoPlayer using the PonoMusic World desktop application, developed by JRiver.

192kHz, it does support DSD. It was announced at CES 2015 that the PonoPlayer will soon offer DSD playback.

Listening on the move

With PonoMusic and the PonoPlayer being so identified with hi-rez recordings and playback, I am pleased to report that CD rips sounded excellent through the player. An album that has been growing on me since engineer Jim Merod handed me a copy at the 2013 T.H.E. Show Newport is the Mike Garson Trio's *Wild Out West* (16/44.1 ALAC files ripped from CD, BluePort). I am a fan of Garson's solo recordings for Reference Recordings, but on this live set the pianist is part of a classic piano trio, with double bass and drums. There are two takes of Miles Davis's "Nardis": one

MacBook Pro; the first time I ran it with the player connected, it updated the latter's firmware to v.1.0.4, which supports gapless playback.

A single charge of the PonoPlayer's rechargeable battery gives up to eight hours' use, and the player accepts all common file formats (see "Specifications"). The PonoPlayer's circuitry was developed by Charles Hansen and his team at Ayre Acoustics; the DAC is an ESS ES9018M, and while this chip is used for 24-bit PCM playback up to

MEASUREMENTS

With its battery fully charged and using both its unbalanced Headphone and Line 3.5mm output jacks, I measured the PonoPlayer with my Audio Precision SYS2722 system (see www.ap.com and the January 2008 "As We See It," <http://tinyurl.com/4ffpve4>). I uploaded WAV and AIFF files of the test signals to the player's internal memory using the JRiver-sourced PonoMusic World app.

The volume control operates on the headphone output only; the output with a 1kHz tone at 0dBFS from the

headphone jack with the volume control set to its maximum was the same as from the line output: 961.3mV. Both outputs had an output impedance of 3 ohms across the audio band, though this varied slightly with level and load impedance, and preserved absolute polarity (ie, were non-inverting), as can be seen from the PonoPlayer's impulse response (fig.1).¹

Fig.1 also reveals that the player's reconstruction filter with 44.1kHz data

has no pre-ringing, and just one cycle of critically damped post-impulse ringing. While this kind of filter is generally felt to be subjectively preferable—Ayre Acoustics' well-regarded QB-9 uses the same filter when its rear-panel switch is set to Listen²—it is associated with a slight loss of top-octave audio-band energy and poor suppression of ultrasonic images. This is seen in fig.2, which shows a wideband spectral analysis of the Pono's output while it decoded 44.1kHz data representing white noise (red and magenta traces) and a full-scale tone at 19.1kHz (blue, cyan).³ The noise starts to roll off gently above 10kHz, and is down by 5dB or so at the

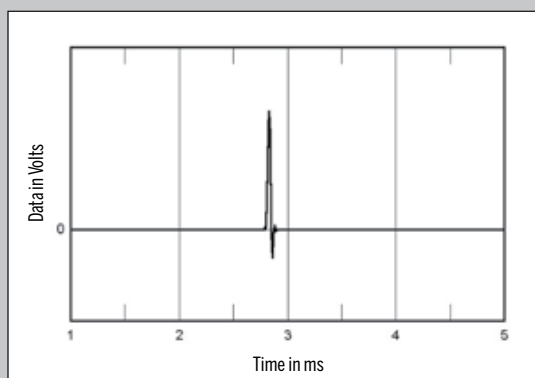


Fig.1 Pono PonoPlayer, impulse response at 44.1kHz (4ms time window).

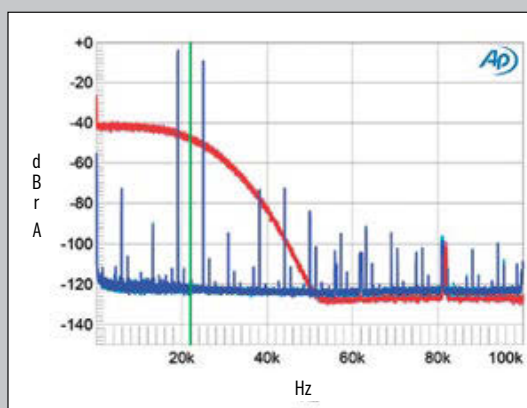


Fig.2 Pono PonoPlayer, wideband spectrum of white noise at -4dBFS (left channel red, right magenta) and 19.1kHz tone at 0dBFS (left blue, right cyan), with data sampled at 44.1kHz (20dB/vertical div.).

¹ Some readers have objected to me performing this test, as a single sample at 0dBFS is an "illegal" signal—it is not bandwidth-limited to less than half the sample rate and will never be encountered with real-life digital recordings. However, I find it diagnostic in nature, as the resultant impulse response maps the digital reconstruction filter's coefficients against time.

² See fig.3 at www.stereophile.com/content/ayre-acoustics-qb-9-usb-dac-measurements.

³ This graphically revealing test of the frequency-domain behavior of a digital product's reconstruction filter was suggested to me by Jürgen Reis, chief engineer of MBL.



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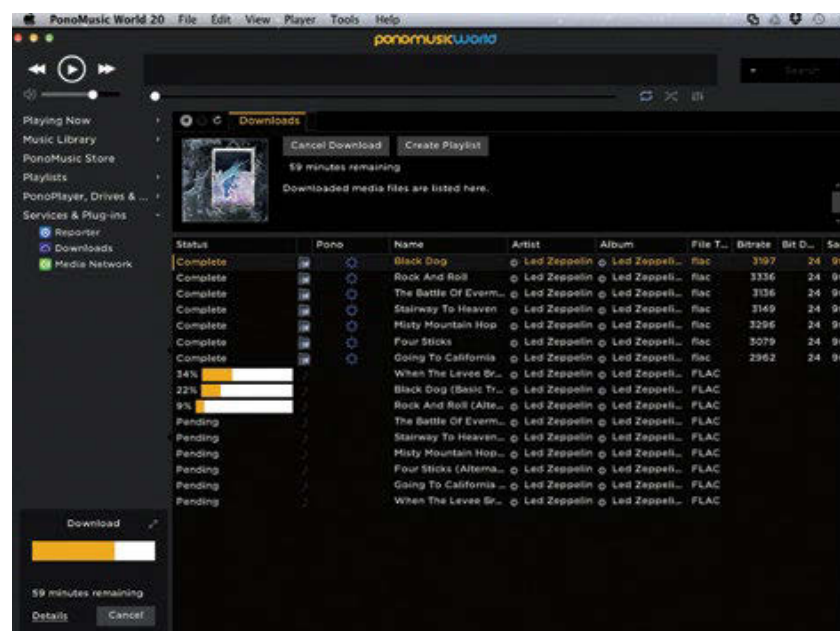
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with the trio that rips along, and a second, more contemplative one with Garson alone. When I listened to both versions of this classic tune through Sennheiser HD650 headphones plugged into the PonoPlayer, Garson's 9' Yamaha grand was reproduced with convincing directness, and the bass solo in the first take had an excellent combination of the body of the instrument's tone and the notes' leading edges. Perhaps the cymbals sounded a touch too sweet—but my Santa Fe Chamber Music Festival recording of Brahms's Piano Quartet 2 in A (ALAC master file for *Encore*, Stereophile STPH011-2) sounded similarly rich and sweet, without the highs being rolled off.

As I mentioned in the booklet notes for this CD, the stage setup for the 1997 Santa Fe Chamber Music Festival had been changed from previous years, optimizing the sound for the audience at the expense of what the microphones would pick up. In the mastering, therefore, to “wet” the sound, I used a Lexicon PCM 90 digital reverberation processor set to match the acoustic of Santa Fe's St. Francis Auditorium. The PonoPlayer was sufficiently transparent to allow me to hear the artificial reverb tails, and, to my relief, after not having listened to the Brahms recording for several years, they didn't sound unnatural. “To be natural,” Oscar Wilde said, “is such a very difficult pose to keep up.” The

**It was
with hi-rez
recordings
that the
PonoPlayer
shone
brightest.**



The PonoMusic's download process is straightforward.

PonoPlayer kept it up.

But it was with hi-rez recordings that the PonoPlayer shone brightest. The first recording this baby boomer purchased from PonoMusic World, for \$27.49, was the remastered *Deluxe Edition* of Led Zeppelin's *IV*, and the first track I played was, of course, “Stairway to Heaven” (24/96 FLAC file). The blue PonoMusic World light between the output jacks lit up as it should.

I don't think I had heard either the unique character of the electric-piano bass line or the rather cheesy quality of

measurements, continued

Nyquist frequency (half the sample rate) of 22.05kHz. It doesn't reach the full stopband attenuation until 53kHz. As a result, the image of the 19.1kHz tone at 25kHz (44,100 minus 19,100) is suppressed by only 6dB or so, and an alias tone at 5.9kHz (44,100–2x19,100) appears in the audioband, though this lies at a probably inconsequential –74dB (0.02%).

Fig.3 plots the PonoPlayer's frequency response in a more conventional manner, using spot tones at three sample rates: 44.1, 96, and 192kHz.

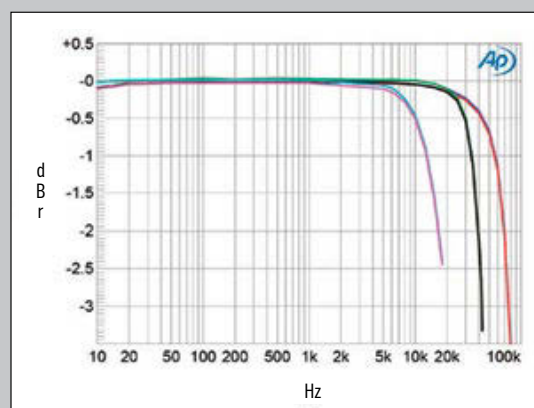


Fig.3 Pono PonoPlayer, frequency response at –12dBFS into 100k ohms with data sampled at: 44.1kHz (left channel cyan, right magenta), 96kHz (left green, right gray), 192kHz (left blue, right red) (0.5dB/vertical div.).

The rolloff with the lowest sample-rate data reached –0.5dB at 10kHz, and –3dB at 20kHz, which may just be audible to young listeners. The rolloff wasn't as gradual with the two higher sample rates, reaching –3dB at 41 and 75kHz, respectively, and the rolloff in the audioband was negligible. Channel separation was very good, at just under 79dB in both directions at low and middle frequencies, decreasing slightly to 76dB at the top of the audioband. The PonoPlayer's noise floor (not shown) was clean and free from idle tones.

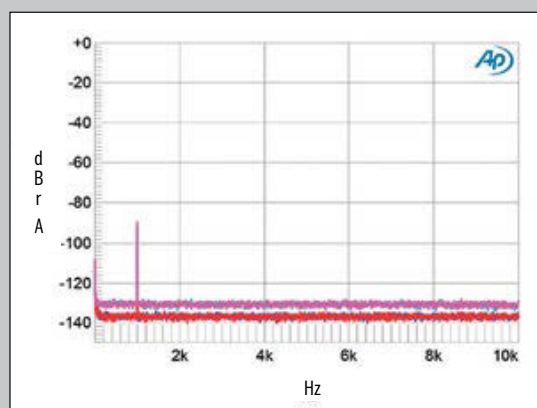


Fig.4 Pono PonoPlayer, spectrum with noise and spuriae of dithered 1kHz tone at –90dBFS with: 16-bit data (left channel cyan, right magenta), 24-bit data (left blue, right red) (20dB/vertical div.).

To examine a product's resolution, I show spectra of its output while it decodes first 16-and then 24-bit data representing a dithered 1kHz tone at –90dBFS. The results of this test are shown in fig.4. The increase in bit depth from 16 (cyan, magenta traces) to 24 (blue, red) drops the noise floor by 7–8dB, implying resolution of just over 17 bits. While lower resolution than Astell&Kern's AK100 and AK240, this is actually good for a player with a low-voltage power supply and a maximum output level 6.4dB below the CD

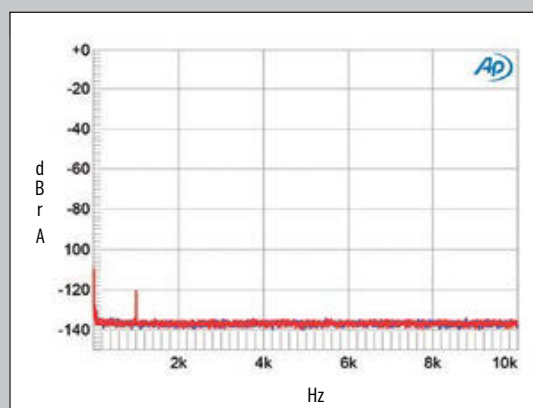


Fig.5 Pono PonoPlayer, spectrum with noise and spuriae of dithered 1kHz tone at –120dBFS with 24-bit data (left channel blue, right red) (20dB/vertical div.).

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the echo on the guitar intro quite so clearly before. This was with the original mix; the bonus Sunset Sound mix of this song included in this edition has a warmer, less electronic reverb, and the channels are reversed: the acoustic guitar is on the right in the intro, rather than the left. But both mixes had that glorious blend of acoustic guitar and Fender electric 12-string in the bridge that leads into Jimmy Page's Fender Telecaster solo, and each was reproduced in all its awesomeness by the Pono, with the Sunset Sound mix a little more dynamic, and not distorted at the climaxes like the original. (While the measured dynamic range in the 45-year-old original's verses after the drums enter is 23–24dB—a sad comment on modern rock recordings, with their typical DR of 10 or lower—the SS mix's DR was even better: 27–28dB!)

For this review, I used the PonoPlayer's conventional unbalanced output. However, the two 3.5mm jacks can be used to send a balanced output to suitable headphones, separating the left- and right-channel outputs across the two jacks, which Michael Lavorgna felt offers a worthwhile improvement in sound quality. The special adapter cable required by my Audeze LCD-X headphones, fitted with two stereo 3.5mm plugs, hadn't arrived by press time, so I

The Astell&Kern AK100 sounded more extended in the top octaves, but still lacked a little vocal body compared with the Pono.

will report my impressions of the PonoPlayer's balanced-mode operation in a Follow-Up.

Portable Comparisons

Since I reviewed it in August 2013,⁵ the Astell&Kern AK100 portable player (\$899) has been my constant companion on my hour-long commute to and from the *Stereophile* office. As I reported in my review, the AK100 offers more refined-sounding highs with more top-octave air than does my iPod Classic 160GB, and makes the iPod's midrange sound coarse.

With Sennheiser HD650 headphones, Beck's "Heart Is a Drum" (24/96 ALAC file from *Morning Phase*, Capitol/HDtracks) sounded warm, clean, and detailed through the AK100, the double-tracked lead vocal localized at far left and right, and the central bass guitar and snare drum immersed in a dome of ambience and reverberant effects. Changing to the PonoPlayer, with levels necessarily matched by ear, the balance was a bit warmer, but with more body to the sound of Beck's voice. The midrange was sweeter, and the low frequencies were both a little more extended and better defined. Through the Audeze LCD-X headphones, which have a more transparent midband than the Sennheisers, the AK100 sounded more extended in the top octaves, but still lacked a little vocal body compared with the Pono.

With the Ultimate Ears 18 Pro in-ear monitors I use for my commute, the bass line that underpins the magnificent use of flanging on the piano in Beck's "Unforgiven"

⁵ See www.stereophile.com/content/astellampkern-ak100-portable-media-player.

measurements, continued

standard's 2V. It is enough resolution, for example, to allow the PonoPlayer to readily resolve a dithered tone at -120dBFS, as seen in fig.5—and note the clean appearance of the noise floor in this graph. Nevertheless, the Pono's reproduction of an undithered tone at exactly -90.31dBFS (fig.6), which should consist of three well-defined DC voltages, is obscured by high-frequency noise.

As Ayre designed the PonoPlayer's electronics, I wasn't surprised to find that the player didn't have the lowest distortion in the high-end universe.

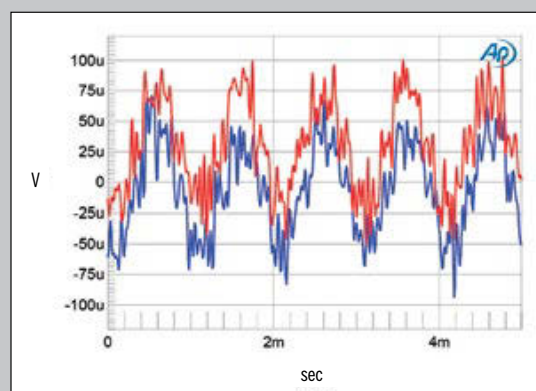


Fig.6 Pono PonoPlayer, waveform of undithered 1kHz sine wave at -90.31dBFS, 16-bit data (left channel blue, right red).

Ayre believes that the benefits of zero loop negative feedback outweigh the degree of nonlinearity that results from the circuit not having corrective feedback. But the Pono's total harmonic distortion is still low in absolute terms with a full-scale signal, at least in the right channel (fig.7, red trace), where the second and third harmonics bracket -90dBFS (0.003%). However, the second harmonic is much higher in the left channel (blue trace), at -67dB (0.04%). Fortunately, pure second-harmonic distortion is innocuous (see "Listening," February 2015),

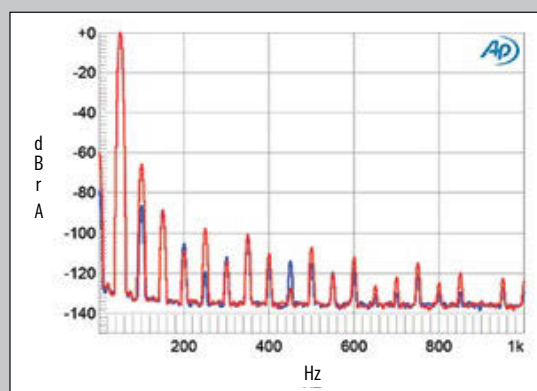


Fig.7 Pono PonoPlayer, spectrum of 50Hz sinewave, DC-1kHz, at 0dBFS into 600 ohms (left channel blue, right red; linear frequency scale).

even at much higher levels than this. This measurement was taken from the Pono's Line output; repeating the test from the Headphone output gave the same result. Turning down the volume control by 6dB reduced the levels of all harmonics.

Intermodulation distortion was relatively low, a full-scale mix of equal amounts of 19 and 20kHz tones giving rise to a second-order, difference product of 1kHz at -80dB (0.01%, fig.8). In fact, almost all the spectral lines you can see in this graph are the result of

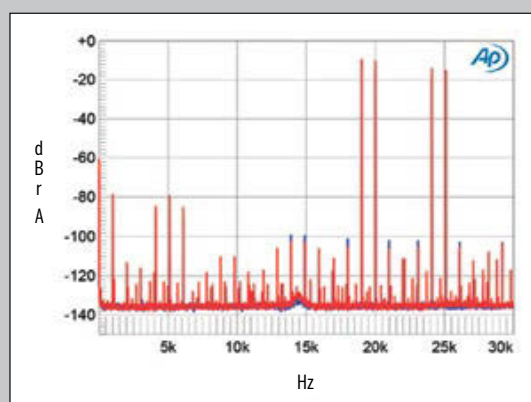
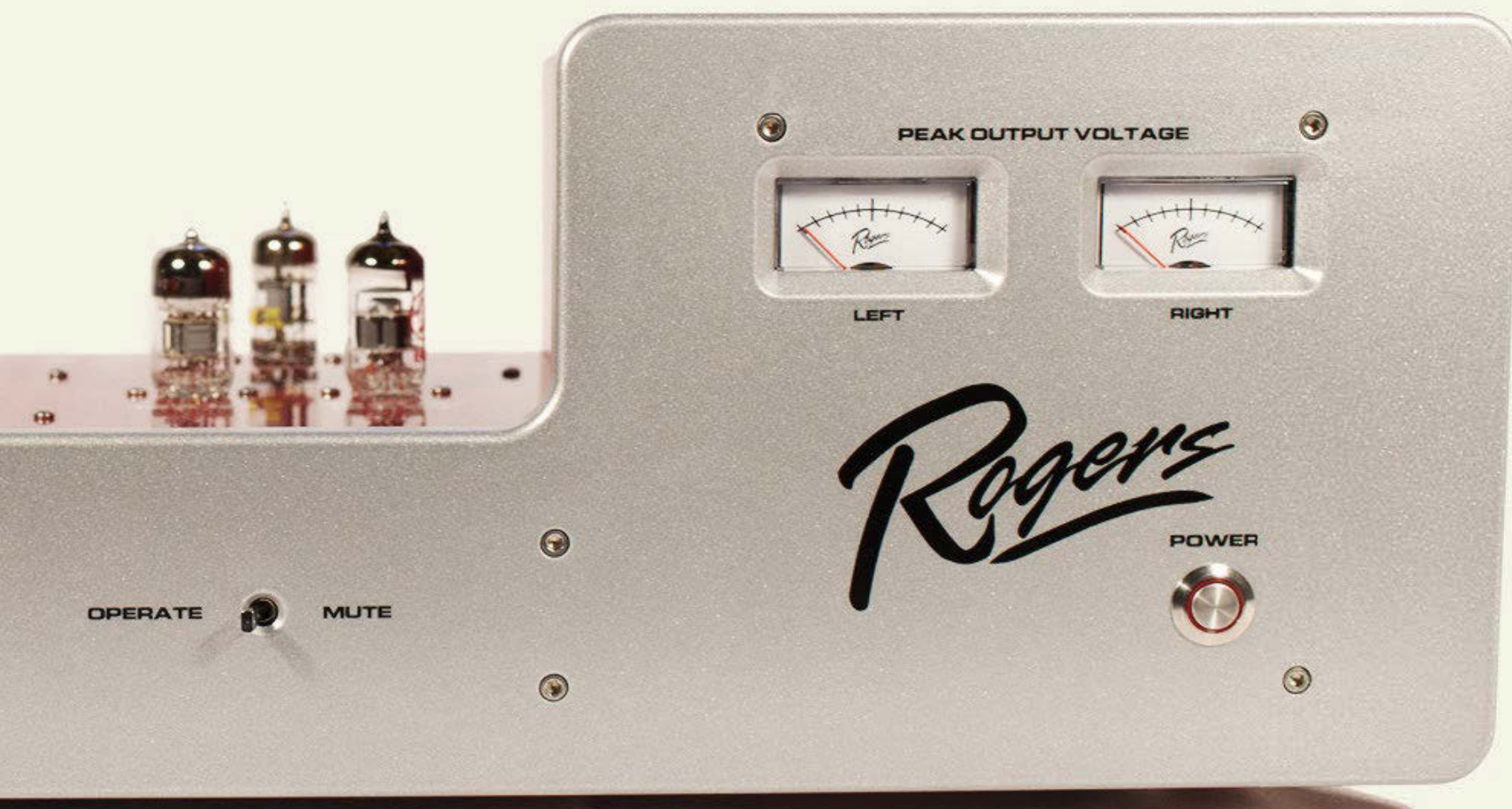


Fig.8 Pono PonoPlayer, HF intermodulation spectrum, DC-30kHz, 19+20kHz at 0dBFS into 600 ohms, 44.1kHz data (left channel blue, right red; linear frequency scale).

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sounded more majestic through the Pono than through the Astell&Kern. This may well be purely due to the fact that the PonoPlayer's output impedance is less than 5 ohms compared with the AK100's 22.5 ohms. As the Ultimate Ears 18 Pro averages 18 ohms in the lower midrange and bass, and 11 ohms between 8 and 10kHz, rising to 30 ohms in the low treble, this variation in impedance will shelve down the lower mids and bass by 1.4dB more than the low treble when driven by the AK100 as compared with the PonoPlayer. (With its 3 ohm output impedance, the Pono's level in the bass is down by 0.5dB with the Ultimate Ears compared with the level in the low treble.)

Unlike the Toblerone-shaped PonoPlayer, the Astell&Kern fits into my shirt pocket, and will already play DSD files as well as PCM up to 192kHz. But the Pono has the edge in sound quality; it will take up residence in my tote bag for commutes.

Listening in the Big Rig

One of the benefits for the PonoPlayer of having been heavily promoted is that it offers non-audiophiles a true high-resolution source for their systems without it costing an arm and a leg: "This portable audio player uses circuitry taken straight from Ayre's own top-of-the-line products, costing tens of thousands of dollars, for unparalleled sound quality and unrivaled listening pleasure." Accordingly, I used it for several days of music listening, plugging its Line output first into a pair of powered Audioengine A2+ loudspeakers.

Wow! Both the Mike Garson Trio and Santa Fe Chamber Music Festival recordings mentioned earlier sounded better than you might expect from a system costing just \$648: a

clean, clear, open treble, a natural midrange, and, in what bass these tiny speakers produce, excellent low-frequency definition.

There's no remote control, of course, and an operational issue emerged: When the PonoPlayer reaches the end of an album, it appears to turn off its output, which can result in a low-level hum until another track is selected. Other than those inconveniences, the PonoPlayer performed admirably with all types of music. This combination would be a superb hi-rez desktop system.

But the real test was to use the PonoPlayer as the front end in my reference system, plugging it into the Ayre KX-R Twenty preamplifier and replacing Ayre's QB-9 USB D/A converter (\$3250).

Again, I was impressed. In Peter Skellern's inspired arrangement of the Harry Warren and Al Dubin standard "About a Quarter to Nine," from Skellern's *A String of Pearls* (24/192 ALAC, needle drop from the 1982 Mercury UK LP, MERL 18), the PonoPlayer readily resolved the singer's multitracked backing voices. It got right the unique sounds of the muted trumpets and trombones in the instrumental break, though I did feel that the double bass sounded a touch woolly. The same was true for the duetting double basses featured in "Don't Give Up," from Peter Gabriel's *New Blood* (16/44.1 ALAC file from CD, Real World/Virgin), while the rich-sounding acoustic guitar riff in Beck's "Heart Is a Drum" was perhaps a little too rich.

But in light of the PonoPlayer's \$399 price tag, this is a minor criticism. And what the Pono got right was the characters of voices—such as Ane Brun's quaky pipes in "Don't Give Up," and Neil Young's shaky vocalizing in

measurements, continued

the slow-rolloff reconstruction filter with 44.1kHz data. Repeating this test with the same tones sampled at 96kHz gave a much cleaner result (fig.9).

Despite the Miller-Dunn J-Test signal's not being diagnostic for a digital product whose word or bit clock is not embedded in the datastream, I still include it in my tests of such products. Fig.10 shows a narrowband spectrum of the PonoPlayer's output while it decoded 16-bit J-Test data. The odd-order harmonics of the low-frequency,

LSB-level squarewave are mainly close to their correct levels (green line), but there are some differences in the levels of the harmonics closest to the spectral spike, which represents the high-level tone at 11.025kHz. Repeating the spectral analysis with 24-bit J-Test data (fig.11) eliminates all odd-order harmonics, as expected, but leaves a pair of sidebands visible at $\pm 229.6875\text{Hz}$. It is the interaction between these tones and the odd-order harmonics that

changes the levels in fig.10. Perhaps these sidebands arise from a small amount of Meitner and Gendron's Logic-Induced Modulation, where the digital data fed to the DAC result in a small amount of power-supply voltage modulation.

Even taking into consideration its relatively affordable price, the PonoPlayer measures very well.

—John Atkinson

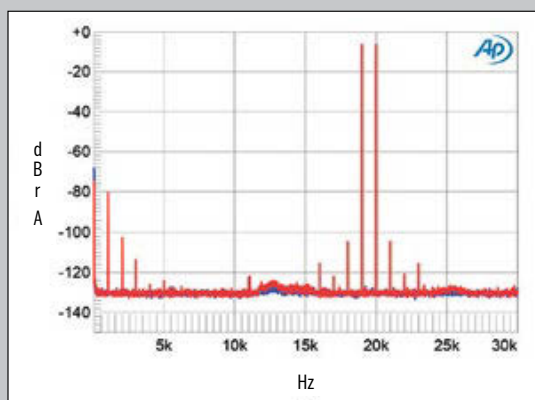


Fig.9 Pono PonoPlayer, HF intermodulation spectrum, DC–30kHz, 19+20kHz at 0dBFS into 600 ohms, 96kHz data (left channel blue, right red; linear frequency scale).

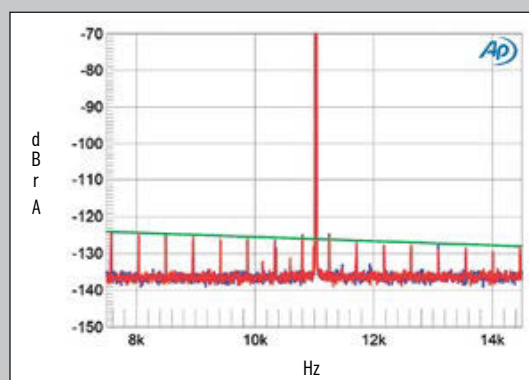


Fig.10 Pono PonoPlayer, high-resolution jitter spectrum of analog output signal, 11.025kHz at -6dBFS, sampled at 44.1kHz with LSB toggled at 229Hz: 16-bit data played from internal storage (left channel blue, right red). Center frequency of trace, 11.025kHz; frequency range, $\pm 3.5\text{kHz}$.

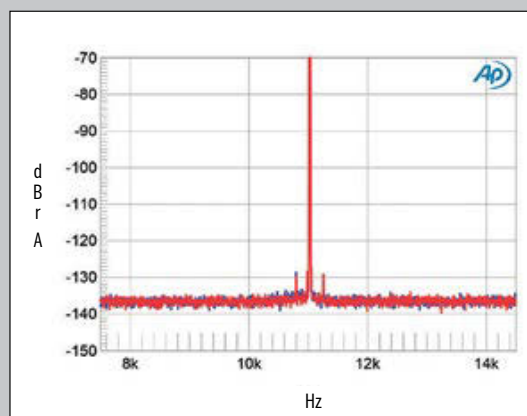


Fig.11 Pono PonoPlayer, high-resolution jitter spectrum of analog output signal, 11.025kHz at -6dBFS, sampled at 44.1kHz with LSB toggled at 229Hz: 24-bit data played from internal storage (left channel blue, right red). Center frequency of trace, 11.025kHz; frequency range, $\pm 3.5\text{kHz}$.



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the track from *Harvest* preloaded on the player, “There’s a World” (24/192 FLAC).

That last track, of course, lit up the blue Pono LED on the player’s end panel. Curious about the robustness of the flag in the data that signifies a genuine PonoMusic World file, I copied this file to my laptop and converted it from FLAC to AIFF using the Max utility, which preserves the file’s metadata. When I uploaded the AIFF version to the PonoPlayer and played it, the cover art was still there, as was the artist, album, and genre information, etc. But now the Pono light remained dark. It appears, therefore, that Pono’s claim of providing authenticated files is valid.

I finished my listening with some formal comparisons. For the hi-rez A/B tests I used “The Lark,” from one of my 2015 “R2D4” choices, Moving Hearts’ *The Storm* (24/192 ALAC, needle drop from LP, Tara 1304). On first listen, with levels matched at 1kHz, the Pono sounded very similar to the Ayre QB-9 fed the same data via USB from my Mac mini running Pure Music. The shrieking skirl of the Uilleann pipes sounded similarly sweet from both sources, and got my toes a-tapping with the same vigor. But repeated comparisons revealed that the Pono didn’t have the low-frequency authority of the almost-10-times-as-expensive QB-9, nor was its soundstage quite as deep. On the Peter Skellern track, the voice of this singer from the North of England was more fully fleshed out through the QB-9, sounding both more palpable and better differentiated from the big-band accompaniment.

Even so, returning to the Mac mini/QB-9 after a day of using the Pono as the only digital source in my big rig, I didn’t feel I had missed much of the music.

The PonoPlayer is a well-engineered, high-performance, portable player that is equally at home in a conventional high-end audio system.

Expecting to fly

Because I have a perverse streak, the last track I played on the PonoPlayer and the Ultimate Ears in-ear monitors before sending off the Pono to be photographed for this issue’s cover was a recording from 1937 that Jason Serinus had recommended: the contralto Sabine Kalter singing a Richard

Strauss *lied*, accompanied by pianist Gerald Moore (16/44.1 ALAC). Playing a mono dub from a 78 with no spectral content above 4kHz through a high-performance, hi-rez player would seem a waste of the latter’s resources. But there was no musical mismatch: the Pono well differentiated this superb performance from the shellac noise.

I’ll put to one side such socioeconomic issues as the high price of hi-rez downloads and the resistance of some members of the audio establishment to the sonic benefits of high-resolution music. Considered on its own merits, the PonoPlayer is a well-engineered, high-performance, portable player that is equally at home in a conventional high-end audio system, and is offered at a fair, affordable price. In combination with the PonoMusic World app, it offers a plug’n’play gateway to high-quality music reproduction. I bought the review sample; can’t wait for it to get back from the photo session. ■

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Emotiva Audio Pro Airmotiv 4s

POWERED LOUDSPEAKER

“ I'm intrigued how Emotiva can offer an active speaker for so little.”
 This was John Atkinson's response to my request to review Emotiva's Pro Airmotiv 4s (\$299/pair). My colleague Steve Guttenberg had been discussing this speaker with me at a recent industry event, and I'd realized that it had been some time since I'd reviewed an entry-level loudspeaker. I'd reviewed Emotiva's X-Ref XRT-5.2 floorstanding speaker in the August 2012 issue and had been impressed with its combination of sound quality and price. I requested samples for review.

Design

Emotiva designs and makes a wide range of audio components, and maintains a high ratio of value to price by designing in the US, manufacturing in China, and selling manufacturer direct, bypassing the dealer markup. As their products come with a 30-day back guarantee, the buyer runs little risk by trying them at home.

The Pro Airmotiv 4 is quite small at 9.5" high by 6.25" wide by 7.5" deep and only 10.8 lbs, but seems to offer a good bit of value for \$299/pair. Each speaker has a 1" by 1.25" (26 by 32mm), folded-ribbon tweeter, and a 4.5" (135mm) mid/woofer with a Curv polypropylene-composite cone. The 4s is biamped: Each drive-unit is powered by its own 25W class-AB amplifier with toroidal transformers, large electrolytic power capacitors, and stacked metalized-film capacitors. The cabinet, of 18mm-thick MDF, includes a 3mm layer of acoustic damping. The Pro Airmotiv 4s also has a faceted, low-diffraction baffle and, vented to the rear, a tuned port with a linear taper.

Each 4s has balanced and single-ended inputs and a



SPECIFICATIONS

Description Two-way, bass-reflex, powered bookshelf speaker. Drive-units: 1" (26mm) by 1.25" (32mm) Airmotiv high-frequency folded-ribbon tweeter, 4.5" (135mm) Airmotiv mid/woofer with Curv polypropylene-composite cone. Crossover frequency: 2700Hz. Frequency response: 58Hz-23kHz, ± 2 dB;

52Hz-27kHz, $+0/-6$ dB. Total amplifier power: 50W RMS. High-frequency amplifier: 25W RMS, S/N >90dB; THD+N, <0.05% at 15W, 10kHz. Low-frequency amplifier: 25W RMS, S/N >90dB; THD+N, <0.05% at 20W, 100Hz. Adjustments and calibrations: High-frequency tilt control: 4kHz hinge frequency; 0 (calibrated),

+2dB, -2dB at 20kHz. Low-frequency shelving control: 150Hz turnover frequency; 0 (calibrated), -2dB, -4dB at 20Hz. HF gain, LF gain, and overall gain calibrated to standard within 1.0dB. **Dimensions** 9.5" (242mm) H by 6.25" (160mm) W by 7.5" (191mm) D. Weight: 10.8 lbs (4.9kg) net, 13.9 lbs (6.3kg) shipping.

Finish Matte black.

Serial numbers of units reviewed 10413520010439/69.

Price \$299/pair. Approximate number of dealers: Sold direct.

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Emotiva's Airmotiv 4S uses a well-braced enclosure, with the controls and amplification mounted on the rear panel.

The Emotiva's extraordinary resolution of detail made it a good match for well-recorded classical music.

Sound

The Emotiva Airmotiv 4s's dead-pure midrange made it an excellent showcase for well-recorded voices. On "Highway 51," from *Bob Dylan* (LP, Columbia CL 8579), every subtle inflection of Dylan's phrasing was captured via the speaker's dynamic envelope. The Airmotiv showcased Cassandra Wilson's voice on her *New Moon Daughter* (LP, Blue Note 8 37183 1) as rich and supple as it floated holographically on a bed of air.

number of adjustments: a level-trim control to optimize the amplifier gain for the input source, and separate high- and low-frequency equalization adjustments for each driver.

Although the Airmotiv 4s is marketed through Emotiva's Pro division, and is intended for use in recording studios as a nearfield monitor, I listened to the speakers at home using my usual procedure. In both my large and small listening rooms, I placed them on 24"-high Celestion Si stands, 4' from the front wall. For all of my listening, I left the frequency trim switches in the neutral positions.

I'm always a bit nervous when listening to a dynamic midrange driver paired with a ribbon tweeter—I worry, especially with so inexpensive a speaker, that the midrange and high-frequency textures won't convincingly integrate. I had nothing to worry about with the Emotiva 4s—all high frequencies were reproduced with clarity, extension, and no trace of coloration, and perfectly integrated with the midrange timbres over a broad range of music. In Vivaldi's *L'estro armonico*, with Neville Mariner conducting the Academy of St-Martin-in-the-Fields (LP, Argo ZRG 733-4), the massed strings were silky but had the requisite bite, with plenty of top-octave harmonic extension and air. A good acid test for midrange/high-frequency integration is Max

MEASUREMENTS

I used DRA Labs' MLSSA system and a calibrated DPA 4006 microphone to measure the Emotiva Pro Airmotiv 4s's frequency response in the farfield, and an Earthworks QTC-40, with its small, 1/4"-diameter capsule, for the nearfield responses. As the Pro Airmotiv 4s is a powered speaker, I can't publish a conventional sensitivity measurement.

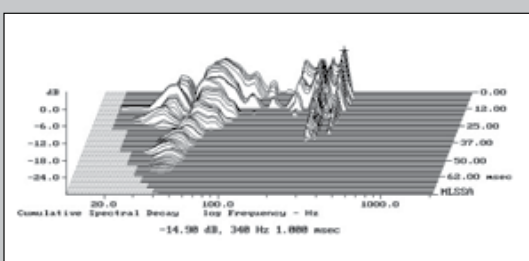


Fig.1 Emotiva Pro Airmotiv 4s, cumulative spectral-decay plot calculated from output of accelerometer fastened to center of side panel (MLS driving voltage to speaker, 1V; measurement bandwidth, 2kHz).

However, presenting 330mV of pink noise to the speaker's input and setting its level control to "50" gave an SPL on the tweeter axis of 84dB(B) at 1 meter.

The Airmotiv's small enclosure was impressively rigid, with just a few low-

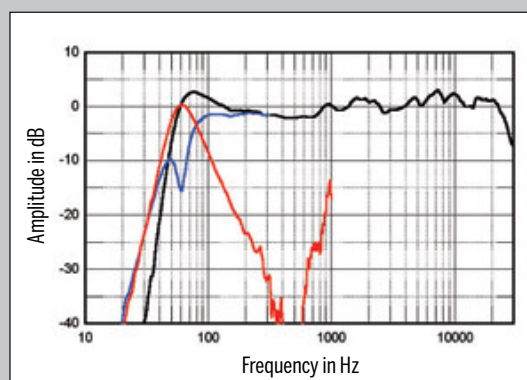


Fig.2 Emotiva Pro Airmotiv 4s, anechoic response on tweeter axis at 50", averaged across 30° horizontal window and corrected for microphone response, with nearfield responses of woofer (blue), port (red), and their complex sum (black), respectively plotted below 300Hz, 1kHz, 300Hz.

level vibrational modes apparent. Fig.1 is a waterfall plot calculated from the output of an accelerometer fastened to the center of one of the sidewalls. The highest-level mode lay at 340Hz, but its level was still very low in absolute terms. A slightly stronger mode, at 254Hz, could be found on the top panel, but the radiating area of the top panel is very small; this mode should have no audible consequences.

Fig.2 shows the Airmotiv 4s's response above 300Hz on its tweeter axis, averaged across a 30° horizontal window, and with the nearfield responses of the woofer (blue trace) plotted below 300Hz, and that of the port (red) plotted below 1kHz. The treble and bass switches were each set to "0" for these measurements; the complex sum of the nearfield outputs is shown as the black trace below 300Hz. The peak in the up-



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Bruch's Violin Concerto 2, with Itzhak Perlman and the New Philharmonia Orchestra, conducted by Jesús López-Cobos (LP, EMI France C 069-02284). Perlman's violin was reproduced with the requisite extended airy bite but without a trace of harshness, perfectly integrated with the midrange textures of the orchestra.

I was amazed at the quality of the Emotiva's bass reproduction and depth of its extension for so small a speaker. In "Clean Plate," from *The Golden Palominos* (UK LP, OAO 1001), there's some very active interplay between the bass guitars of Bill Laswell and Jamaladeen Tacuma. The Airmotiv 4ses reproduced both with pounding clarity; it was very easy to differentiate each master's individual bass lines.

The Emotiva's extraordinary resolution of detail made it a good match for well-recorded classical music. In George Crumb's *Madrigals*, with Elizabeth Suderburg codirecting the Contemporary Group of the University of Washington (LP, Turnabout TV-S34523), the sound of the recording venue was clearly delineated, and each instrument seemed to pop out of thin air in its appropriate place on the soundstage. The Mikaeli Chamber Choir's *Kör*, conducted by Anders Eby, includes sacred choral works by Hovland, Verdi, von Koch, and Hambraeus, accompanied by pipe organ (LP, Proprius PROP 7770). Through the Emotivas I was able to pick out the voice of each singer, and could almost map out the dimensions of the very reverberant recording venue, a church. And for such a small speaker, I was very surprised at how well the organ-pedal notes boomed and bloomed.

Other classical recordings showcased the Emotiva's superb ability to articulate transients. Listening to Pinchas

Zukerman, Jacqueline Du Pré, and Daniel Barenboim's LP of Beethoven Piano Trios (EMI SLS 789-5), I was captivated by the Airmotiv 4s's ability to unravel Barenboim's piano technique in the difficult fast passages. And in Walter Leigh's Concertino for Harpischord and String Orchestra, with soloist Trevor Pinnock, and Nicholas Braithwaite conducting the London Philharmonic (LP, Lyrita SRCS 126), it was very easy to distinguish the rapid, crystal-clean harpsichord passages from the massed violins.

The Emotivas also communicated an excellent sense of high-level dynamic slam. In "Humpty Dumpty," from Chick Corea's *The Mad Hatter* (LP, Polydor PD-1-6130), the interaction of bassist Eddie Gomez and drummer Steve

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voices.**



measurements, continued

per bass is almost entirely an artifact of the nearfield measurement technique, and the overall high-pass rolloff is much faster than a conventional reflex design's 24dB/octave, suggesting that the Emotiva's bass alignment is sixth-order, to prevent its small woofer from being driven to its excursion limit

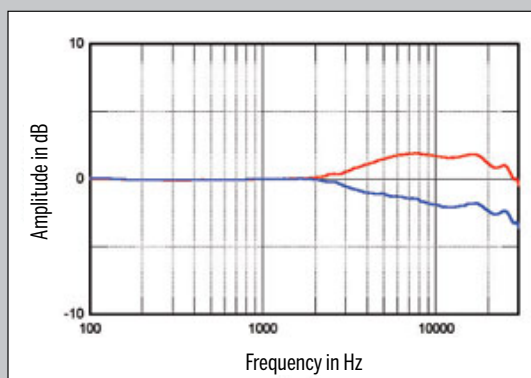


Fig.3 Emotiva Pro Airmotiv 4s, effect of treble switch on HF-axis response (5dB/vertical div.).

by infrasonic signals. The port has a sharply defined peak in its output just below 1kHz and peaks between 50 and 80Hz, while the woofer's minimum-motion notch occurs at 60.5Hz. This is the frequency where all the output comes from the port and suggests modest low-frequency extension.

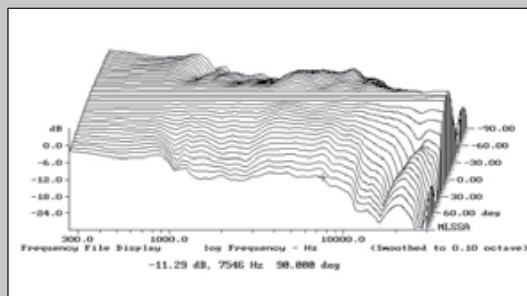


Fig.4 Emotiva Pro Airmotiv 4s, lateral response family at 50", normalized to response on tweeter axis, from back to front: differences in response 90-5° off axis, reference response, differences in response 5-90° off axis.

The Emotiva's farfield response is smooth and even, if with a slight rising trend from the midrange through the high treble. Fig.3 shows the effect on this response of switching the speaker's treble control to "+2" and "-2": the range covered by the tweeter can be seen to hinge up and down by 2dB at 10kHz. Switching the bass control from "0" to "+2" raised the woofer's output by 1dB at 100Hz, and the port's by 2dB at 60Hz. Switching the control to "+4" raised these levels by another 1 and 2dB, respectively.

The Airmotiv 4s's lateral dispersion, referenced to its tweeter-axis response, is shown in fig.4. Though there is a slight flare off axis at the bottom of the region covered by the tweeter, the radiation pattern is otherwise wide and even below 10kHz, suggesting

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Gadd in the more frenetic passages of Corea's piano solo was reproduced with clean, punchy bass and uncompressed high-level dynamics.

I also enjoyed cranking up the Emotivas to high volumes for rock. In "Spider in My Web," from Ten Years After's *Undead* (LP, Deram DES 18016), Alvin Lee's guitar was rich and ringing in its upper register—and I couldn't keep my body still during the Emotivas' coherent reproduction of the churning, pounding rhythms in Talking Heads' *Fear of Music* (LP, Sire SRK 7076).

Comparisons

I compared the Emotiva Airmotiv 4s (\$299/pair) with the Audioengine 2 active speakers (original version, \$199/pair), as well as with Pioneer's SP-BS22-LR passive model (\$160/pair) driven by my usual amplification (see sidebar).

The Audioengine 2 had a natural-sounding midrange, with highs a bit more polite than the Emotiva's but with less midrange detail. The Audioengine's midbass was clean and rich, but didn't go as deep as the Airmotiv's, and its high-level dynamics weren't as wide. Transients through the Audioengine were good, but not as articulate as the Emotiva's.

The Pioneer SP-BS22-LR had the deepest bass of the

**Emotiva
Audio's Pro
Airmotiv 4s
is a superb
performer for
the price.**

Like an increasing number of speakers, the Airmotiv 4S uses a folded ribbon tweeter.



ASSOCIATED EQUIPMENT

Analog Sources Rega Research Planar 3, VPI TNT IV turntables; Immedia, Syrinx PU-3 tonearms; Clearaudio Virtuoso Wood, Koetsu Urushi cartridges.

Digital Sources Creek Destiny, Lector CDP-7T CD players.

Preamplification Creek Destiny, Vendetta Research SCP-2D phono stages; Audio Valve Eclipse line stage.

Power Amplifier Audio Research Reference 75.

Integrated Amplifier Creek Destiny.

Loudspeakers Audioengine 2, Pioneer SP-BS22-LR.

Cables Interconnects (all MIT): Magnum M3, MI-350 CV-Twin Terminator, MI-330SG Terminator. Speaker: Acarian Systems Black Orpheus. AC: manufacturers' own.

Accessories Various by ASC, Bright Star, Celestion, Echo Busters, Salamander Designs, Simply Physics, Sound Anchor, VPI.—Robert J. Reina

three, but the Airmotiv 4s's low end was cleaner. Highs through the Pioneer were natural, but the Emotiva's highs were clearer. The Pioneer's resolution of inner detail was superior to the Audioengine's, but not as good as the Emotiva's. In addition, the Airmotiv 4s's high- and low-level dynamics were superior to the Pioneer's.

Conclusion

Emotiva Audio's Pro Airmotiv 4s is a superb performer for the price, with strengths unheard of for \$299/pair, and with negligible shortcomings. In fact, I was sufficiently impressed that I'm buying the review samples for use in the engineering and mixing of an upcoming home studio recording of my jazz quartet, Attention Screen. Like JA, I'm amazed at how Emotiva can offer so much active speaker for so little. ■

measurements, continued

accurate, stable stereo imaging. In the vertical plane (fig.5), a deep suck-out develops in the crossover region more than 5° above the tweeter axis, suggesting that high stands will work best with this speaker. The Airmotiv 4s maintains its treble balance up to 15° below the tweeter axis, suggesting that

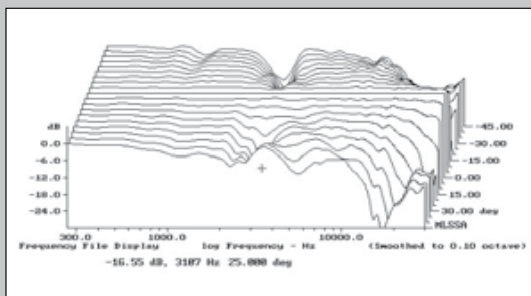


Fig.5 Emotiva Pro Airmotiv 4s, vertical response family at 50", normalized to response on tweeter axis, from back to front: differences in response 45–5° above axis, reference response, differences in response 5–45° below axis.

this speaker will work well as a studio monitor when mounted on the mixing console's meter bridge.

In the time domain, the Emotiva's step response (fig.6) indicates that the tweeter is connected in inverted acoustic polarity, the woofer in positive

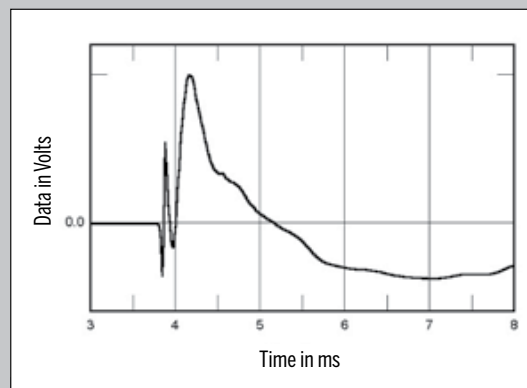


Fig.6 Emotiva Pro Airmotiv 4s, step response on tweeter axis at 50" (5ms time window, 30kHz bandwidth).

polarity. The cumulative spectral-decay plot (fig.7) is impressively clean, other than a slight degree of delayed energy in the low treble.

Overall, Emotiva Audio's Pro Airmotiv 4s offers impressive measured performance, especially when you consider that it costs just \$299/pair.

—John Atkinson

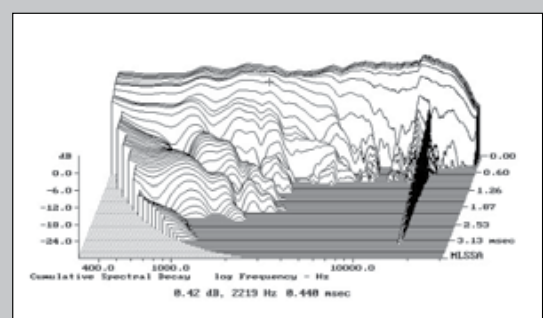


Fig.7 Emotiva Pro Airmotiv 4s, cumulative spectral-decay plot on tweeter axis at 50" (0.15ms risetime).

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HERB REICHERT

Tekton Design Enzo XL

LOUDSPEAKER

The CD era was well underway. Rudy Giuliani was about to sweep the crack hoes and squeegee humans off New York's garbage-filled streets. Disney was conquering Times Square. It seemed the perfect time for artists and audio weirdos like myself to go underground. Seeking economic sustainability, I hunkered down in my Seaport bunker and started a little business called Eddie Electric. I found a 23-year-old Japanese business partner named Ryochi who was dealing in big-E Levi's, bubble-back Rolexes, and antique Abarth cars. He was my Seaport, New York–Akihabara, Tokyo connection.

Ryochi had dropped out of school at 16 and had already saved a gillion dollars in vintage \$100 bills. Together we imported Tango audio transformers and Black Gate capacitors. To avoid trade deficits, Eddie Electric exported vintage amps and loudspeakers made by Altec, Marantz, and Western Electric.

One day, I forced Ryochi to come with me to Sound by Singer. I wanted him to meet Dave Wilson, of Wilson Audio Specialties, and experience the newest version of Wilson's famous WAMM loudspeaker. Every New York audio scribe and hi-fi aficionado was there. The hors d'oeuvres were pretty good, and so was the WAMM sound. When the pony show was over and we were walking to the subway, I asked Ryo what he thought of the demonstration.

"Giant robots are no fun!"

Ryochi taught me a lot about how to listen to and judge components: not by how I *think* they should sound, but how they make me feel while listening to my favorite music. Unfortunately . . .

Thinking—and especially that ol' Checkered Demon, *critical* thinking—happens all the time while I'm writing a review. It happened more than usual while I was listening to the new Tekton Enzo XLs. But this time, thinking was good. Why? Because, while playing music through these 4'-high, five-driver, three-way black monoliths, I didn't just have judgmental thoughts—I had vivid dreams and sensuous memories too! All of which mixed and ran together in the most

SPECIFICATIONS

Description Floorstanding, three-way, reflex-loaded loudspeaker. Drive-units: three 1" ring-radiator tweeters, two 10" pulp-cone woofers. Frequency range: 30Hz–30kHz. Impedance: 8 ohms (average). Sensitivity: 96.5dB/W/m. Power handling: 400W.

Dimensions 48" (1230mm) H by 11.625" (300mm) W by 15.125" (390mm) D. Weight: 72 lbs (32.7kg).

Finishes Black, Red, White, Gray

(all Satin). Custom paints available at extra cost.

Serial numbers of units reviewed None found.

Price \$2100/pair; grilles and capacitor upgrades available at extra cost. Approximate number of dealers: sold direct. Warranty: 5 years.

Manufacturer Tekton Design LLC, 1488 W. 400 S., Orem, UT 84058-5139. Tel: (801) 836-0764. Web: www.tektondesign.com.



radical

[origin: latin *radicalis*: root of the issue]



Kal Rubinstein

"It made my very good speakers undeniably better, smoother and cleaner and endowed them with a bigger soundstage."

Stereophile DEQX PreMate review, November 2014

John Atkinson

"...the DEQX PreMate, considered as a D/A processor, offers superb measured performance. That it also has an enormously flexible DSP engine is a bonus."

Stereophile DEQX PreMate review, November 2014

Michael Fremer

"There was nothing 'digital' about the presentation. Nothing."

"Is Kyron Audio's Kronos the Best Sounding System You Will Ever Hear?" analogplanet.com Oct 18, 2014.

DEQX Speaker and room calibration

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IT'S NOT SUBTLE

wondrous and delightful ways.

When I played my first record through the non-broken-in Enzo XLs, I experienced mostly thoughts: *Can these Enzos really be as good as they already sound? Are they truly as neutral as I think I'm hearing? And they cost only \$2100/pair?* Doubt and skepticism rattled my brain. Not to mention that, while I was listening, I kept remembering those early days of the first superbig (and superexpensive) high-end speakers—the days when giants ruled the listening room: Wilson WAMMs, Apogee Scintillas, Magnepan Tympani IIIs, Infinity IRSes, Duntech Sovereigns.

The new Enzo XLs were not only designed by Eric Alexander, founder and president and chief of everything at Tekton Design, LLC—they were also *built* by him at the Tekton Design facility in Orem, Utah. When I listened to that first recording, I did have one very noticeable feeling: envy. I envied Eric Alexander. He must have had so much fun creating these speakers. I've always wanted to design a great loudspeaker and share it with the world. But alas, designing even an enjoyably good speaker is nearly impossible. After countless tries, I realized that I simply do not have the wide-ranging talents necessary to design even a merely decent loudspeaker. Alexander, on the other hand, appears to have been *born* to engineer speakers.

Alexander has been designing loudspeakers full time for more than 20 years. Like your humble prattler, he began as a wrench-twirling drag racer. Also like me, he believes he has a gift for “visualizing physics.” Most important, Tekton's president shares my nagging desire to figure out

what exactly is that stimulus that tells us, when we can't see the musicians, whether we're listening to live or recorded music. Every time I walk down a street and hear, through an open window, the sound of someone playing a piano, I am amazed at how instantly, without any thought, my brain declares it to be a real instrument and not a recording of one. The big question is, what clues does my brain use to tell me it's live? I always speculate. I swear I can picture those tense wavefronts pushing out through the open window. But what *is* it? Greater volumes of pressurized air? Microdynamics? I don't know, and I wish I did. Fortunately, it sounds as if Eric Alexander is working on our collective behalf to figure it all out.

Description

Each Enzo XL has three SB Acoustics 1" ring-radiator tweeters and two 10" Eminence paper-cone woofers loaded with two 4" front-firing ports. Collectively, these pressurize a lot more air than do most popular hi-fi loudspeakers. The Enzo XL's specified sensitivity of 96.5dB/W/m is almost 10dB higher than that same majority. Speakers this sensitive usually do microdynamics well.

My review samples came in basic Satin Black. Eric Alexander offers three other stock finishes, plus a wide range of optional custom paints and veneers that can make these towers, 48" high by 11.625" wide by 15.125" deep, look as suave and deluxe as those \$100,000/pair Class A models you see on the covers of audio magazines. Optional cloth front grilles are also available.

MEASUREMENTS

I used DRA Labs' MLSSA system and a calibrated DPA 4006 microphone to measure the Tekton Enzo XL's frequency response in the farfield; and an Earthworks QTC-40, with its small, 1/4"-diameter capsule, for the nearfield responses.

The Enzo XL's specified sensitivity is an extraordinary 96.5dB/W/m; my estimated value was 90.6dB(B)/2.83V/m, which is much lower but still significantly and usefully higher than the average of all the speakers I have measured, which is between 87 and 88dB(B). Other than a small region in the mid-treble, the Tekton speaker's impedance magni-

tude (fig.1, solid trace) remains above 6 ohms at all frequencies, and the electrical phase angle (dotted trace) reaches extreme values only when the magnitude is high. The Enzo XL is therefore well suited for use with low-powered tube amplifiers.

Some small wrinkles in the impedance traces suggest the presence of panel resonances in the large cabinet, which did indeed sound lively when subjected to the traditional knuckle-rap test. A more scientific version of that test is to excite the enclosure by feeding the speaker high-level MLS (Maximum-Length Sequence) noise, and plot a cumulative spectral-decay

or waterfall graph from the output of an accelerometer fastened to one of the panels.¹ Doing so, I found several high-level resonant modes on all cabinet surfaces, with one at 301Hz the strongest on the sidewalls level with the bottommost tweeter (fig.2) and on the rear panel. Another mode, at 262Hz, was strongest on the top panel, while a mode at 414Hz dominated on the bottom half of the side panels. All of these modes are of high Quality Factor (Q), so may measure worse than they sound. Also, the Enzo's high sensitivity will work against these resonances being as fully excited as they are in my measurements. It's appropriate to note that HR didn't comment on any coloration or midrange congestion that could be laid at the feet of this measured behavior.

The saddle centered just above 30Hz in the impedance-magnitude trace (fig.1, solid) suggests that this is the tuning frequency of the twin large, 2"-diameter ports on the Enzo's front baffle. As expected, therefore, I found that the minimum-motion notch in

Stereophile Tekton Enzo XL Impedance (ohms) & Phase (deg) vs Frequency (Hz)

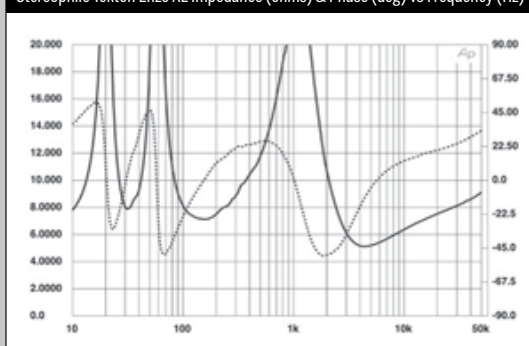


Fig.1 Tekton Enzo XL, electrical impedance (solid) and phase (dashed) (2 ohms/vertical div.)

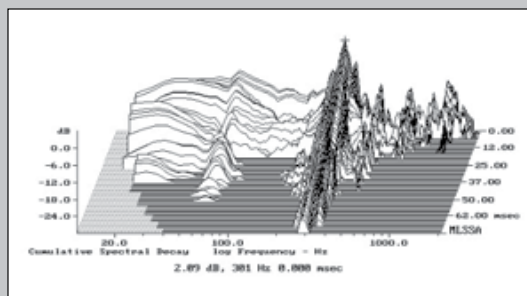


Fig.2 Tekton Enzo XL, cumulative spectral-decay plot calculated from output of accelerometer fastened to center of side panel level with bottom tweeter (MLS driving voltage to speaker, 1V; measurement bandwidth, 2kHz).

¹ See “The Sound of Surprise,” www.stereophile.com/features/806/index.html.



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Listening and still thinking . . .

Without desire or plan, I grabbed a strange and (for me) very difficult LP from 1962: *Money Jungle*, featuring the unusual trio of Duke Ellington, Charles Mingus, and Max Roach (United Artists UAS 5632). Piano, bass, and drums are all close-miked and mixed in dense, up-close-to-everything early stereo. This record is freaky because I always feel as if I'm sitting not in the audience but right on the edge of the stage. But, to producer Alan Douglas and engineer Bill Schwartau's credit, instrumental tone is almost perfectly right on. I can never quite follow the off-kilter musical threads, but every time I play *Money Jungle*, I simply wallow in piano and bass tones. Through the Enzo XLs, Ellington's piano and Mingus's bass caused me to speculate about what tape recorder was used. Sometimes, but only with the most vivid recordings, I swear I can *feel* the magnetic tape as it contacts the recorder heads. The well-broken-in XLs felt like clean magnifying lenses. They took me off the stage and into the recording studio. I couldn't follow the music much, but my brain was measuring the distance from the mikes to the piano's hammers.

Still in my Listen-and-Learn-About-Bartók period, I put on my newly acquired copy of his Sonata for Two Pianos and Percussion, with pianists Wilfrid Parry and Iris Loveridge (1957 mono LP, Westminster XWN 18425).



Unusually, the Enzo XL uses a vertical array of three tweeters.

you, Béla; thank you, Westminster Records; and thank you, Eric Alexander.

Suddenly, I realized that, not since my Dynaco A50 college days had I had a loudspeaker in my *chambre modeste*

This work of raw modernist invention begins quietly and innocently on pianos, but soon enough is knocking walls down and throwing bricks. The exact opposite of easy or distracted listening, it's a goose-bumping mind twister that's not for the lame or the faint of heart. Imagine walking into a dreamy death dance between two pianos, a snare drum, and timpani. Through the Tektons, the bass tones were tangibly and enjoyably deeper, more natural, more expansive than any I had before experienced at home. Metal snares and drumhead skins sounded sharp and vivid. The pianists' right-hand notes were vibrant and percussive in an easy, natural, musical way. Starting, stopping, and forward momentum were exemplary, but it was the well-balanced *tonal precision* of the Enzo XL that pulled me into this spectacular recording. For me, this work is about temporal space. I wasn't just hearing the music, I was feeling it—and time-traveling back to Europe *ca* 1937. Thank

measurements, continued

the woofers' combined output (fig.3, blue trace) occurred at 31Hz, the frequency at which the back pressure from the port resonance holds the cones stationary. The combined output of the ports peaks between 20 and 60Hz, confirming HR's finding that this speaker offers excellent bass extension. Though I've shown the combined outputs of the woofers and ports, each behaved slightly differently, the lower woofer having a double notch in its low-frequency response, and the upper port a much lower response peak at 230Hz.

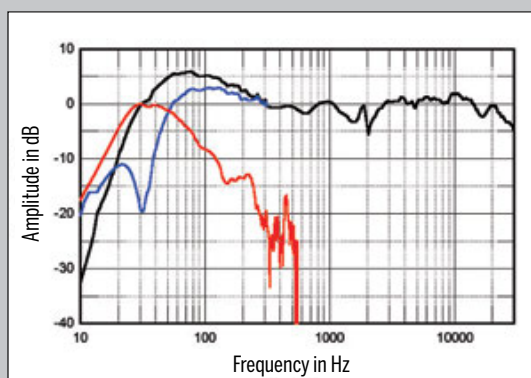


Fig.3 Tekton Enzo XL, anechoic response on central tweeter axis at 50", averaged across 30° horizontal window and corrected for microphone response, with nearfield responses of woofer (blue), port (red), and their complex sum (black), respectively plotted below 300Hz, 1kHz, 300Hz.

The complex sum of the woofer and port responses, which takes into account acoustic phase, is shown as the black trace below 300Hz in fig.3. Although HR felt the Enzo XL had a low-Q bass alignment, the apparent peak in the midbass, which is primarily due to the nearfield measurement technique, does suggest that the Q is a little higher than he conjectured.

Higher in frequency in fig.3, the black trace shows the Enzo XL's farfield response on the middle-tweeter axis, averaged across a 30° horizontal window. Overall, the balance on this axis is impressively even, though a slight lack of energy in the upper midrange and low treble probably correlates with

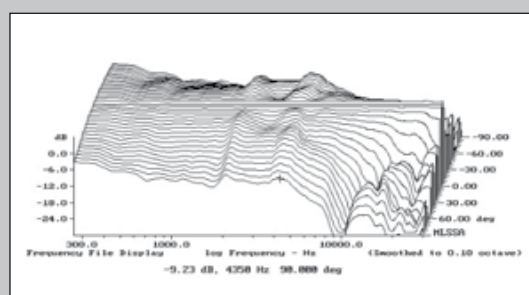


Fig.4 Tekton Enzo XL, lateral response family at 50", normalized to response on central tweeter axis, from back to front: differences in response 90-5° off axis, reference response, differences in response 5-90° off axis.

the lower-than-specification measured sensitivity. It might well also correlate with HR's finding that the Tekton's "overall sound leaned a tiny bit more toward the Puritan, the restrained, and the businesslike than I prefer."

With the Enzo XL's larger-than-usual woofers, whose radiation pattern will narrow at the top of their passband, it was not surprising to find a slight off-axis flare in the tweeters' passband (fig.4). But this will also be due to the lack of energy on axis mentioned earlier filling in somewhat to the speaker's sides. It might, therefore, be worth experimenting with toe-in to get the most neutral treble balance. However, with that wide baffle, the

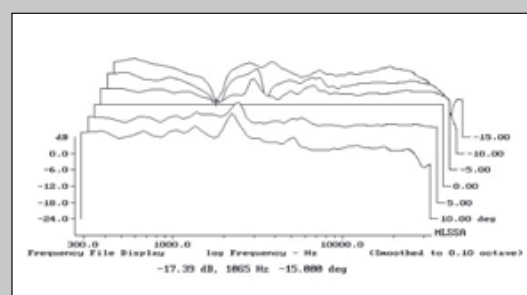


Fig.5 Tekton Enzo XL, vertical response family at 50", normalized to response on central tweeter axis, from back to front: differences in response 15-5° above axis, reference response, differences in response 5-10° below axis.

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that could go really low in the bass, as the Enzos were doing. It made me want to celebrate and binge on E. Power Biggs or Sly and Robbie. Instead, I put on “Thousand Island Park,” from the Mahavishnu Orchestra’s *Birds of Fire* (1973 LP, Columbia 31996). My first thought was *How easily I have let myself become satisfied without that sensuous and gloriously tactile bottom octave*. The Enzos didn’t just play Rick Laird’s bass notes—they let me *feel* them. The XLs didn’t present to my brain the idea of bass, as all of my small speakers do—they massaged me with expanding wavefronts. There was something unique and extremely natural about the way the Tektons projected bass energy into the room. They got not only the tone, the attack, and the decay, but the plucked-string pulling-up *emphasis* of the bass player’s art. The Enzos did an especially good job of connecting me to the humans making the music.

Birds of Fire is a difficult record for any hi-fi to decode. Four out of five times I’ve played this album, the compositions have seemed annoying and pretentious. But the Enzo XLs, driven by a Roksan K2 B2 integrated amplifier, presented “Thousand Island Park” in such a relaxed and edifying fashion that I wondered why I hadn’t “gotten” this music before. Musical moments naturally morphed one into the next. I could *watch* the music unfold.

The Enzo XLs reminded me ever so much of Snell’s gloriously hypermusical Type A speakers, albeit with a slightly more hesitant, tighter, but perhaps more integrated sound. The XLs didn’t breathe air like the Snells, but they could *move* air like those giant robots. They didn’t open up, or sing in romance languages like the Snells or my DeVore Fidelity Orangutan O/93s, but they could place a

realistically scaled Frank Sinatra, from his *Swing Easy!* (LP, Capitol H528), right in my room.

“Now somewhere in the black mountain hills of Dakota there lived a young boy named Rocky Raccoon . . .” Playing this track from *The Beatles* (LP, Parlophone PMC 7067) with Grado Labs’ Mono cartridge had an almost carnival-ride up-and-down syncopation that had me bouncing and smiling. When I was playing the new *The Beatles in Mono* reissues (14 LPs, Apple 6337971) through the XLs, I just wanted to retire and hit the road in a restored VW microbus. The Enzos reminded me how, every time I play a familiar old record through a newly upgraded system, I wonder: *Am I the first person to truly hear this recording?*

Somewhere in my soggy memory I hear these words: *ultimate test record*. I can’t remember what it was or who made it, but over the years I have anointed several of the recordings I own with that title. Right now, the honor goes to the ear-opening *A Nonesuch Treasury of Americana*, a compilation released in 1977 (2 LPs, Nonesuch H7-14). Over the course of its four sides, *Americana* takes the listener on a fantastic journey through 18th- and 19th-century American composers of popular music. It features fun ditties like Henry Clay Work’s “Grandfather’s Clock” (“And it stopped—short—never to run again, when the old man died!”), and James Hewitt’s “Yankee Doodle,” played by Richard Ellsasser on the famous organ of the Hammond Museum in Gloucester, Massachusetts. This record is beyond happy fun. In addition to a cappella granddads and monster electric organs, it has mezzo-sopranos, baritones, choirs, trombones, snare drums, a vanload of historical instruments, and full-tilt marching bands—all very simply

measurements, continued

tweeters’ radiation pattern narrows considerably above the cursor position in this graph, 4.35kHz, and this is not compensated for by any rise in the top-octave response. Though this will not be a problem in small rooms such as HR’s, the Enzo XL might sound a bit too mellow in large or heavily damped rooms. In the vertical plane (fig.5), a suckout develops more than 5° above the middle-tweeter axis. This will not be a problem, given the fact that that axis is 42" above the floor. The suckout in the on-axis response around 2kHz

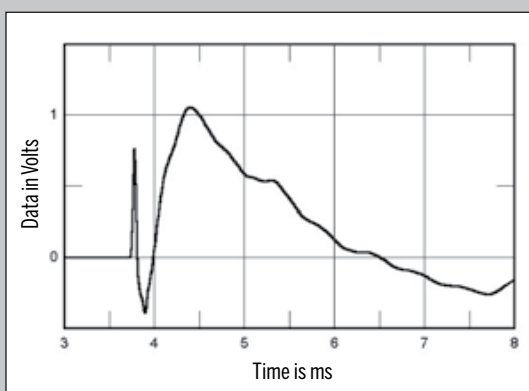


Fig.6 Tekton Enzo XL, step response on central tweeter axis at 50" (5ms time window, 30kHz bandwidth).

does tend to fill in below this axis, and to my surprise—given the vertical array of three tweeters—the Tekton’s vertical dispersion in the top octave is wide.

The Enzo XL’s step response (fig.6) indicates that all five drive-units are connected in positive acoustic polarity, with the arrival of the tweeters leading that of the woofers by about 400μs. However, the decay of the tweeters’ step smoothly blends with the start of the woofers’ step, implying good cross-over design. There are some undulations in the decay of the woofers’ step, which the cumulative spectral-decay plot (fig.7) shows are associated with

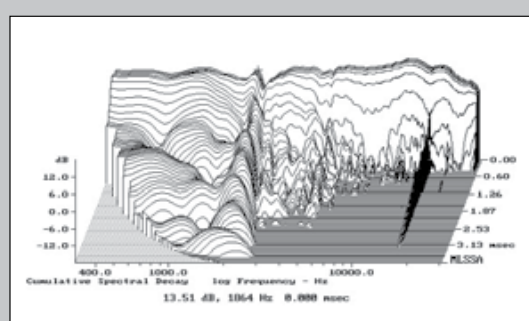


Fig.7 Tekton Enzo XL, cumulative spectral-decay plot on central tweeter axis at 50" (0.15ms risetime).

a high-Q resonance at 1864Hz. I would have thought that this resonance, perhaps due to a problem with the termination of the woofer cones’ surrounds, would add hardness to the sound. HR didn’t comment on an audible problem in the presence region, but did say that the Tektons “got not only the tone, the attack, and the decay, but the plucked-string pulling-up emphasis of the bass player’s art”—just the kind of tonal emphasis I would expect from such a low-treble resonance. (Bass guitarists often use a presence-region boost to emphasize the “ping” in their instruments’ sound—at least, I do.)

Overall, the Tekton Enzo XL measured much better than I was expecting, given its idiosyncratic design: three tweeters in a vertical array, two large-diameter, paper-cone woofers, and that lively enclosure. Its combination of high sensitivity and extended low frequencies is rare in speakers in this price class, and, other than that resonance just below 2kHz, seems to have been achieved with little compromise elsewhere.—John Atkinson



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*Background photo courtesy of Hotel Irvine

recorded by Marc J. Aubort and Joanna Nickrenz. (If you don't already know Aubort and Nickrenz's legacy of minimally miked recordings, put this magazine down now, log on to eBay, and start bidding on any of their Nonesuch or Vox/Turnabout LPs.¹)

Oh yeah—I almost forgot about the speakers! The Tekton Enzo XLs played all four sides of this recording masterpiece with note-perfect tone. They projected the scale and air of each unique recording venue in a fashion that made me admire Marc and Joanna more than ever [*insert row of heart emoticons*]. If you're an imaging freak but still want the deep bass that only a big-ass, air-moving monolith can provide, these are the speakers for you. Organs, choirs, and mezzo-sopranos all gave me goose-bumps. The Tekton Enzo XLs not only did imaging and soundstaging with ease, they were easy to place in my room. I had a hard time finding *bad* spots for them.

I drove the XLs with every amp I had, and the Enzos played differently but effectively with each. With the Rogue Audio Sphinx, bass slam and midrange boogie were beyond top shelf. The highs were elegant and clean. With the Roksan K2 B2, I could have danced forever. With the Simaudio Moon 340i (review to come), I felt a little—and dreamed a little—that I was listening to the big Wilsons with Dan D'Agostino's steam-punk amps sitting on the floor. With my Line Magnetic LM518 IA, the XLs played acoustic jazz and big classical orchestras with pagan magicke and Enlightenment finesse. Then I remembered that the Enzo XL is 96.5dB sensitive. So . . .

I hooked the Tektons up to my totally budget, made-in-China Antique Sound Labs Tulip 2A3, a single-ended 3Wpc amp with NOS RCA 2A3 tubes (\$599 new). This transformed the bass from well-dressed Wall Street raider to metrosexual Parisian poet. Drunk on absinthe, this mustachioed, low-frequency bohemian slurred a little, and his beret smelled of Gauloises, but he spoke most colorfully. The midrange shape-shifted into a beautiful Geisha. Koto music played with paper-lantern charm. The highs became Hokusai geese flying against a blue October sky.

Most loudspeakers, and especially big ones, suffer from an inability to play well and preserve gooseflesh at volumes very low and very high. The Tekton Enzo XLs played as well at a whisper as they did at a scream. And speaking of highs . . .

You should know by now that the main highs I prefer come from intense music and tweeters that completely “disappear.” Well, each Enzo XL has three tweeters, each apparently crossed over at a different frequency, and they all “disappeared” just fine.

Doing business and getting high

My main criticism of the Tekton Enzo XL is that its overall sound leaned a tiny bit more toward the Puritan, the restrained, and the businesslike than I prefer. Piano tone, attacks, and decays were always quite good—but not always as corporeal or as rich as I like. The XLs had a little kale-shake gym-rat in their DNA. You guys (and maybe even John Atkinson or Michael Fremer) would call them simply neutral. Me? I found myself *occasionally* wishing for a busty Gypsy dancer to appear, pull me down laughing in the dirt, and spill pirate rum all over the both of us. Occasionally, I

ASSOCIATED EQUIPMENT

Analog Sources Pioneer PLX-1000, Technics SL-1200MK2, Thorens TD-124 turntables; SME 3009 II tonearm; Sound-smith Carmen, Grado Labs Mono, Ortofon 2M Black, Zu Audio DL-103 cartridges.

Digital Sources Puresound A-8000 CD player, Line Magnetic LM 502CA DAC.

Preamplification Soundsmith MMP3, Schiit Mani, Sentec EQ11 MM, April Sound BB1 phono stages; Intact Audio step-up transformer & passive autoformer preamplifier.

Integrated Amplifiers Simaudio Moon Evolution 340i, Line Magnetic LM518 IA, Rogue Audio Sphinx, Roksan K2 BT, Antique Sound Labs Tulip 2A3.

Loudspeakers DeVore Fidelity Orangutan O/93, KEF LS50

Cables Interconnect: Auditorium 23, Kimber Kable Silver Streak. Speaker: Auditorium 23, Kimber Kable 8TS. AC: manufacturers' own.

Accessories Dr. Feickert Analogue app.—Herb Reichert

could have used a measure more of what Art Dudley calls *chunk*—a little more juicy red meat.

But nevertheless! I would describe the Enzo XL as being not *too* anything. They avoided overstatement in a smart, admirable way. I usually like speakers with a system Q (complex electro-mechanical damping or Quality factor) of 0.55, or maybe 0.6 or even 0.65! The higher numbers reflect sounds that are looser and less damped. The Enzo XLs sounded like a textbook Q of 0.5. When I began playing them with the Ortofon 2M Black, I was surprised at just how similar the characters of cartridge and speakers were. Both transducers have a kind of well-damped orderliness.

Conclusions

Unlike my joyous, main-squeeze DeVore Fidelity Orangutan O/93s or my “how can they be so good?” KEF LS50s, these floorstanders from Tekton don't fit the “Restricted LF” category of *Stereophile's* “Recommended Components.” Eric Alexander's creations are probably the first truly *full-range* speakers I have experienced in the privacy of my own bunker.

I didn't know what I was missing. All of my reference speakers deliver colorful, beautifully toned, rhythmic, coherent, pleurably detailed music. But they perform these musical functions at a price: they give up one or more octaves of soul-infusing bass. High-quality expression in the lower registers is always extra expensive. It's a law of nature.

The Enzo XLs gave me 90% of the coherence and joy of my Class A reference speakers, along with at least one additional, deeply gratifying octave of big, live-sounding, pants-flapping, room-filling bass. Unbelievably, they also gave me something like 90% of the accuracy and authority I heard from Wilson Audio's “giant robots” back in the late '80s.

Today, the average price of the speakers listed in “Class A—Full Range” of *Stereophile's* “Recommended Components” is over \$56,000/pair. In that world, the \$2100/pair Tekton Enzo XLs are practically free. Based on my reviewing experience, these practically free speakers will get you a satisfyingly big portion of those \$50,000 models' performance.

Consider this review a *thoughtfully* considered, *heartfelt* recommendation. These giant monoliths are great fun! ■

¹ See Michael Fremer's 2010 Analog Planet interview with Aubort at <http://tinyurl.com/l8ah875.me>

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ART DUDLEY

Thöress 300B

MONOBLOCK POWER AMPLIFIER

I was weak and easily led.

In 1978, after enduring four or five years of wretched music made by men with long hair and beards and tendencies toward eonic guitar solos, I suddenly discovered that the only music worth hearing was made by clean-shaven men of limited musical proficiency. I embraced the Clash, the Pistols, the New York Dolls, the Ramones, and the Buzzcocks. I cut my hair and gave away some of my old records. I even threw out my copy of Jethro Tull's *A Passion Play*—which, now that I think about it, wasn't that bad an idea.

Then I woke up and remembered: I'd left the baby in the bathwater.

Many bearded, long-winded musicians from my past, such as Neil Young and Phil Manzanera, were no less worthy of my attention. And although the Clash and the Dolls¹ made some of the finest pop records of all time, punk wasn't *all* good. Punk wasn't even all punk: Some performers were attracted to the genre simply because it was easy to play, and many of those people turned out to be unoriginal posers with little or nothing to say. Still others turned out to be upper-class entertainment-biz hacks and aging arena-rockers who merely cut their hair and shaved off their moustaches—or, in the case of female performers, adopted motorcycle jackets and accident-victim hairdos—as camouflage. Thus I had to relearn something I seemed to know when I first started buying records: to try everything, and avoid the temptation to judge unfairly or too quickly.

Then, in the context of audio, I had to learn that lesson all over again. In 1995, after witnessing 10-plus years of audio components of ever-increasing price, size, complexity, and filigree, and with a brief and only partly satisfying tour of duty in the Flat-Earth trenches,² I suddenly discovered that the only electronics worth hearing were



¹ I am unrepentant in holding to the unpopular opinion that the Dolls' second album, *Too Much Too Soon*, is better than their debut.

² My experiences were satisfying inasmuch as they taught me the worth of certain products and points of view associated with that movement. But that satisfaction always hit the wall whenever the doctrinaire attitude of so many of the movement's proponents and adherents raised its ridiculous and sad little head.

SPECIFICATIONS

Description Monophonic single-ended-triode tubed power amplifier. Tube complement: one 300B, two EL803S. Input: 1 line-level. Maximum output power: 8Wpc into 16 ohms (12dBW ref. 1W into 8 ohms). Input impedance: 100k ohms.

Input sensitivity: 3.25V RMS. Output impedance: transformer matched to 4, 8, 16 ohms (see text). **Dimensions** 13.4" (343mm) H (including tubes) by 5.9" (152.5mm) W by 23.3" (597mm) D (including output terminals). Weight:

28 lbs (12.7kg).

Serial numbers of units reviewed None found.

Price \$12,995/pair. Approximate number of dealers: 6.

Manufacturer Reinhard Thöress, Martinstrasse 17, 52062 Aachen, Germany. Tel./Fax: +49 (0)241-

4091368.

Web: www.thoeress.com. US distributor: Audioarts, Inc., 210 Fifth Avenue, Suite 301, New York, NY 10010.

Tel: (212) 260-2939. Web: www.audioarts.co.

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hand-wired, single-ended-triode tube amps with no negative feedback. Of all the dogmas I've owned, that one may have contained the most truth.

But it was still a dogma. I then woke up and remembered that many of the amps I'd owned and loved in the past—like the Naim 250 and the Conrad-Johnson MV-50—were rendered no less great by the existence of single-ended-triode amps. And it eventually became apparent that some builders were attracted to SET amps simply because they're comparatively easy to design, and a few of those people turned out to be unoriginal posers with little or nothing to say.

I discovered that, as with virtually every club, being a member of the He-Man Push-Pull Haters Club was just another way to avoid thinking for myself.

Thankfully, I no longer believe that an amplifier must be single-ended—or feedback-free, or hand-wired, or tubed, or class-A, or anything else—in order to be good. Which is not to say that the single-ended, feedback-free, hand-wired Thöress 300B mono power amplifier (\$12,995/pair) isn't really special. Because it *is*.

Description

The Thöress 300B mono power amplifier, made in Aachen, Germany, uses a single 300B triode tube, and is said to deliver up to 8W across a 16-ohm load. Each Thöress also contains a pair of new-old stock Telefunken EL803S pentode tubes, which designer Reinhard Thöress says are carefully matched at his factory, and used together as a single voltage gain/driver stage. In Thöress's design, both input pentodes are configured as triodes, with the B+ supply (210V) applied to anodes and screen grids alike. The input signal goes to the signal grid of the first EL803S pentode, the plate of which is coupled to the signal grid of the second EL803S; the cathode of that second EL803S is capacitively coupled to the signal grid of the 300B output tube.

The 300B tube selected for the Thöress 300B—the Chinese-made Full Music 300B/c, which Thöress buys in matched pairs—is operated in fixed-bias mode. The bias voltage is set at the factory, with the aid of hand-selected, high-precision resistors that are matched between the two amps of a given stereo pair. Reinhard Thöress chose this approach, he says, because it's reliable—a potentiometer is likelier than a discrete resistor to fail or drift in value—and because it generates less heat than auto-biasing.

All three full-wave rectifiers used in the amp's simple, robust power supply comprise individual diodes. Apart from that, the power supply is unremarkable, save for one refinement: The 300B is heated with DC rather than AC, and its filament supply contains a user-accessible hum pot.

At first glance, the design of the 300B's chassis seems intended to maximize rigidity while avoiding excess mass. Thöress modestly dismissed that notion: "There is no big philosophy behind my chassis. I just try to keep things simple and functional." The bottom, top, and sides of the 300B are made of aluminum, shaped with curves and louvers both attractive and functional, and beautifully lacquered and polished inside and out. To the bottom plate are fastened the three largest and heaviest components—the power-supply choke, mains transformer, and output transformer—all of which are designed and made in-house by Thöress. Also fastened to the bottom are five very large filter capacitors, made in Italy by a company I'd never before heard of: Comar Condensatori.

Just under the 300B's top plate is a sizable chunk of circuit-board laminate, about $\frac{3}{8}$ " thick and measuring some 19" long by 5" wide. All three tube sockets are moored here, as are two long rows of terminal strips, between which are arranged the input section's resistors and capacitors, cordwood-style.

I would not hesitate to describe the build quality of the Thöress 300B as masterful, in every respect: construction

MEASUREMENTS

I performed full sets of measurements on both samples of this retro-styled amplifier, using Audio Precision's SYS2722 system (see www.ap.com and the January 2008 "As We See It," www.stereophile.com/content/measurements-maps-precision). As instructed in the manual,

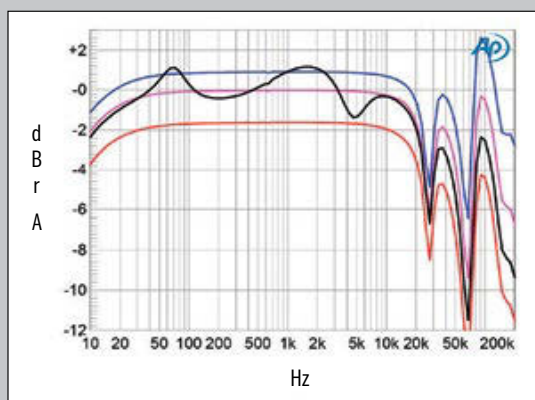


Fig.1 Thöress 300B, frequency response at 275mV into: simulated loudspeaker load (gray), 16 ohms (blue), 8 ohms (magenta), 4 ohms (red) (1dB/vertical div.).

after inserting the tubes and running each amplifier for a while to make sure everything was at the optimal operating temperature, and with no signal applied, I rotated the rear-panel knob of each monoblock to minimize measured hum in the output. This was a straightforward operation and, as you can see from the signal/noise measurements later in this report, an effective one.

The output-transformer taps were left in the 8 ohm setting used by Art Dudley in his auditioning, and I began measuring the amplifiers after they'd been running at a low level into 8 ohms for an hour. There I ran into trouble—although I'd understood from AD that Reinhard Thöress required measurement with the analyzer inputs floating with respect to ground, the 300Bs were unstable when so measured, delivering no more than 50mW into 8 ohms. The fix was to connect the amplifiers'

black output terminals to the analyzer's chassis ground—a peculiar solution, given that loudspeakers are themselves electrically isolated from ground. Nonetheless, from then on, measuring the Thöress 300Bs was straightforward.

As the manual warns, the 300B offers very low voltage gain: just 6.85dB into 8 ohms at 1kHz. It preserved absolute polarity (ie, was non-inverting), and the input impedance was high at low and middle frequencies, at 90k ohms, dropping slightly to 62k ohms at the top of the audioband.

The output impedance was relatively low for a single-ended design, at 1.9 ohms at 20Hz and 1kHz, rising to 2.4 ohms at 20kHz, which resulted in response variations of ± 1.2 dB with our standard simulated loudspeaker (fig.1, gray trace; see www.stereophile.com/content/real-life-measurements-

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and finish, quality of wire dressing and soldering, layout of circuits and parts. It appears to be built to last a lifetime.

Installation and setup

With its one RCA jack for input, one pair of binding posts for output, and complete lack of bias controls, the Thöress 300B might be regarded as distinctly easy to set up. It was. Each amp of my review pair was packed in its own well-designed carton, with tubes tucked away in their own subcartons. With the amps unboxed and placed on the floor—at 13.4" high by 5.9" wide by 23.3" deep, each 300B is far too large for the average equipment rack or domestic tabletop—the tubes were easy to install in their top-mounted sockets: No tools of any sort were required.

After that, only one chore remained: Once each Thöress is connected to the system and powered up for the first time, the user must trim the filament supply of its 300B tube, listening for hum and adjusting the rear-mounted knob until all is silent and well. This was easy and unambiguous, and took less than 30 seconds for each amp. From that moment forward, the Thöresses were completely free of hum, and no noise intruded on my listening, save for the scarcely perceptible, gamelan-bell-like sounds one often hears immediately after powering up an amplifier that uses one of today's premium 300B tubes.

The proprietary output transformer of the Thöress 300B has multiple secondary taps, and can be configured for use with loudspeakers of 4, 8, or 16 ohms. Output impedances are set with jumper wires soldered into place—but because



I discovered that being a member of the He-Man Push-Pull Haters Club was just another way to avoid thinking for myself.

the soldering of transformer leads is best left to experts, I left my review samples at the 8-ohm settings bestowed on them at the factory. (The respective nominal impedances of my Altec Valencia and DeVore Fidelity Orangutan O/96 speakers are

16 and 10 ohms.)

A note about gain: According to Reinhard Thöress, the input sensitivity of his 300B amp is intentionally low, to prevent excessive preamp noise in systems that include the high-efficiency speakers with which most Thöress amps will surely be used. The amp's low input sensitivity has the additional benefit of allowing the user to operate his or her preamplifier volume control within a moderate to high portion of its range, where channel tracking is optimal—and that certainly proved true in my system.

Listening

The first thing that impressed me about the sound of the

measurements, continued

page-2). Into resistive loads, the 300B offered a superbly flat response in the audioband, with -1dB limits into 16 ohms at 10Hz and 18kHz (blue trace). The high-frequency rolloff occurred at slightly lower frequencies as the impedance dropped (magenta and red traces), but what can also be seen in this graph are two major ultrasonic resonances, both of which increase in level as the load impedance increases. This kind of behavior, common with

SET designs, is related to the output transformer, but it adds a degree of overshoot and ringing to the Thöress 300B's reproduction of a 1kHz square-wave (fig.2), and obscures the shape of a 10kHz squarewave (fig.3).

With the amplifier's rear-panel potentiometer adjusted for lowest hum, the 300B's unweighted, wideband S/N ratio (ref. 1W into 8 ohms) was 74dB; reducing the measurement bandwidth to the audioband improved this to

79.2dB, and the A-weighted ratio was an impressive 95.7dB. Fig.4 reveals that the highest-level hum component is the full-wave-rectified 120Hz component at -80dB (0.01%), the 60Hz component lying at a very low -110dB ref. 1W into 8 ohms.

As expected, this is a low-powered amplifier. Figs. 5 and 6 plot the percentage of THD+noise in the amplifier's output against power into 16 and

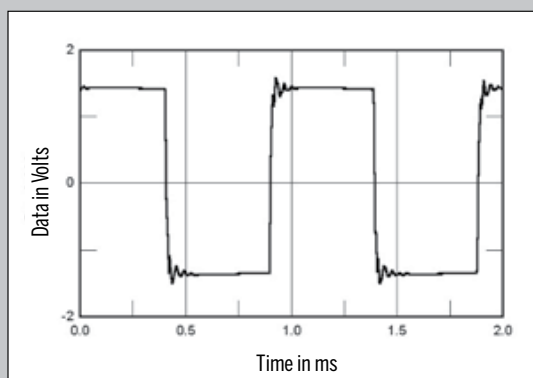


Fig.2 Thöress 300B, small-signal 1kHz squarewave into 8 ohms.

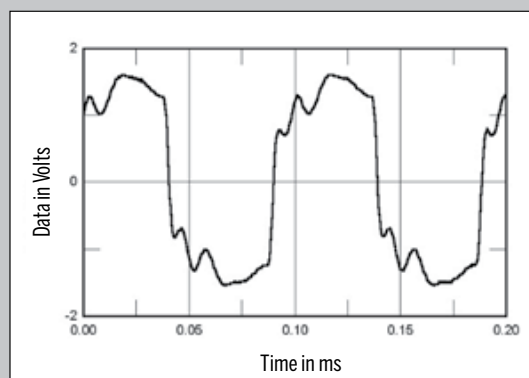


Fig.3 Thöress 300B, small-signal 10kHz squarewave into 8 ohms.

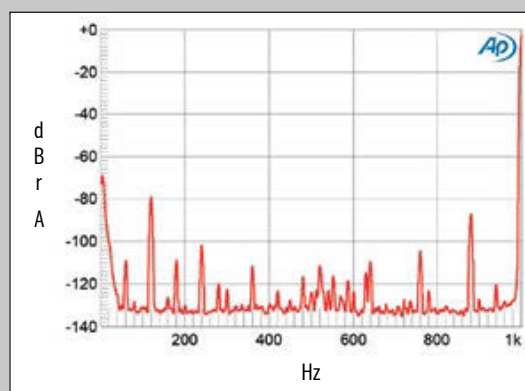


Fig.4 Thöress 300B, spectrum of 1kHz sinewave, DC-1kHz, at 500mW into 8 ohms (linear frequency scale, 0dB ref. 1W).

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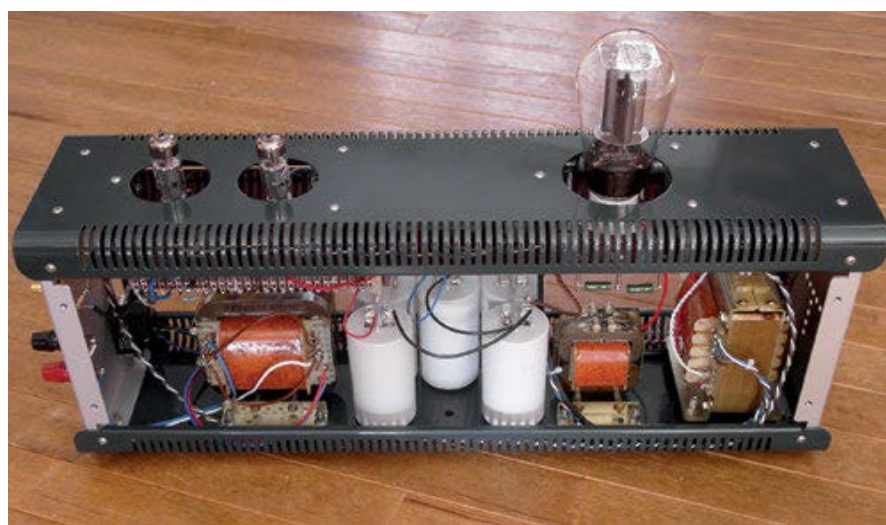
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Thöress 300B was its exceptionally good sense of *touch*—a characteristic I noted with virtually every record I tried, not just those that have a lot of plucking and banging going on. For example, in Peter Maag and the London Symphony Orchestra's famous version of Mendelssohn's music for *A Midsummer Night's Dream* (LP, Decca/Speakers Corner SXL 2060), even the sounds of bowed violins exuded a very convincing intensity of touch. Of course, the Thöress also rose to the occasion with more overtly tactile material, as with the pizzicato strings in the second movement of Vaughan Williams's Symphony 4, performed by Sir Adrian Boult and the New Philharmonia Orchestra (LP, Angel S-36557)—and, even more so, with Art Taylor's explosive drumming in "Tanya," from Dexter Gordon's *One Flight Up* (LP, Blue Note/Cisco 84176).

Those recordings also showed off the Thöress's very good overall balance: It distinguished itself as a 300B-tubed amplifier with a little more treble extension than usual—which is to say, here was a 300B amp that did not sound *entirely* like a 300B amp—yet it was not in the least bright or harsh, and its bass registers were in very good proportion to the rest of the audioband, being neither too rich nor too lean. If you'll forgive a lapse into



A view to a thrill: the Thöress 300B with its side panels removed.

The bottom, top, and sides of the 300B are shaped with curves and louvers both attractive and functional.

to mind a very good Martin (or Merrill) OM- or 000-size mahogany-bodied flattop.

The Thöresses portrayed strings, woodwinds, brass, and voices with very good texture and color—the last not quite as rich or as saturated as the best I've heard, but more than merely satisfying—and did so in a context of exceptional clarity. In a reissue of the Borodin Quartet's classic recording of Shostakovich's String Quartet 8 (LP, Decca/Speakers Corner SXL 6036), the 300Bs made clear, in the opening bars, the distinctions between the instruments—especially the viola and cello—and allowed each a good measure of color and *thrum*. Dynamic peaks—especially in pizzicato passages, of which there is no shortage in this work—came across with considerable force, plucked violins in particular being tactile and punchy, and just slightly less *crisp* than through my Shindo Haut-Brion stereo amp. Also reproduced with great snap and touch were the sounds of harpist Marisa Robles in a 1966 recording, with George Guest leading the Choir of St. John's College, Cambridge,

guitar-nerdism: In its evenness of response from the lowest notes to the highest, with no notes given short shrift or undue prominence, this amplifier brought

measurements, continued

8 ohms, respectively. The THD+N is impressively low below 30mW, especially into 16 ohms, but rises linearly with output power until the onset of waveform clipping. The Thöress 300B is specified as delivering 8W into 16 ohms (12dBW), but fig.5 reveals that, with the 8 ohm connection used by AD, the amplifier reaches our normal definition of clipping (1% THD) at 6W (10.8dBW). Even with a relaxed defini-

tion of clipping of 3% THD, it delivers 7W into 16 ohms rather than 8W. Into 8 ohms (fig.6), however, while its 1% THD power is just 3.5W (5.45dBW), the 300B achieves a power output of 10W (10dBW) at 3% THD.

Because of the 300B's low maximum power, I measured how its THD+N varied with frequency at 2V rather than 2.83V (equivalent to 500mW into 8 ohms rather than 1W). The results are

shown in fig.7. The distortion remains uniform with frequency until the top octave, where the measurement is affected by the ultrasonic resonances mentioned earlier. As expected, the THD+N rises with decreasing impedance, which strongly suggests that the speakers used with the Thöress mono-blocks should have an impedance that doesn't drop significantly below the nominal value of the amplifier's output-

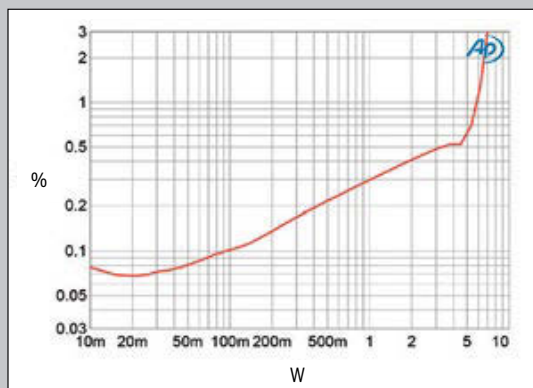


Fig.5 Thöress 300B, distortion (%) vs 1kHz continuous output power into 16 ohms.

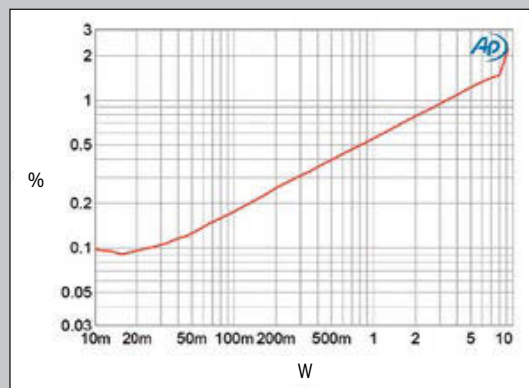


Fig.6 Thöress 300B, distortion (%) vs 1kHz continuous output power into 8 ohms.

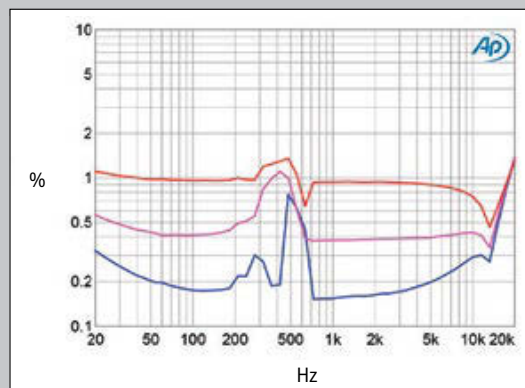


Fig.7 Thöress 300B, THD+N (%) vs frequency at 2V into: 16 ohms (blue), 8 ohms (magenta), 4 ohms (red).

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of Britten's *A Ceremony of Carols* (LP, Argo ZRG 5440). Except for a few traces of distortion that seem endemic to the recording itself—which is to say, I hear them through *all* gear—solo and massed voices were free of harshness and ripe with natural color. I also enjoyed the power and scale with which the harp's lowest registers were reproduced.

The Thöress's beautiful way with piano music was also a source of ceaseless fascination and joy. One of my favorite releases from the Electric Recording Company is Henriette Faure's recording, made in 1961 for EMI, of Debussy's *Estampes* and Book I of his *Préludes* (LP, EMI 350 C 004/ERC 006). The sound of the piano was ideal: colorful yet clear, with note decays as natural and unelectric as I've ever heard, the Thöresses seeming to work with my speakers to allow this recording of a piano to load the room as would the instrument itself. The piano's sense of scale was also wonderful, varying believably and becoming huge when needed—but not being oppressively huge throughout. I heard the same believable approach to scale with other, different-sounding piano discs, including Radu Lupu's 1973 recording of Beethoven's Sonata 21, Op.53 (LP, Decca Jubilee JB 105), and Wilhelm Backhaus's of the same piece (LP, London CS 6161).

Spatially, the Thöresses had the sort of room sound and "air" I would expect from amps with very good treble extension. They threw an impressively wide, well-detailed "stage" when playing such studio creations as "Pictures of a City," from King Crimson's *In the Wake of Poseidon* (LP, Discipline Global Mobile KCLP2), with excellent presence given Robert Fripp's electric-guitar solo near the beginning of the instrumental interlude. (I'm still giddy from having heard them perform this number during last year's Elements of King Crimson tour.) Orchestral music was also served well, and I enjoyed the sense of depth the Thöresses brought

ASSOCIATED EQUIPMENT

Analog Sources Garrard 301 turntable; EMT 997, Thomas Schick tonearms; Ortofon SPU-A & SPU 95th Anniversary & CG25i, Miyajima Premium BE Mono II, EMT OFD 15 & TSD 15 pickup heads.

Digital Sources Halide Designs DAC HD USB D/A converter; Apple iMac G5 computer running Audirvana Plus v.1.5.12; Sony SCD-777ES SACD/CD player.

Preamplification Hommage T2 step-up transformer, Shindo Masseto preamplifier.

Power Amplifiers Shindo Corton-Charlemagne (monoblocks) & Haut-Brion.

Loudspeakers Altec Valencia, DeVore Fidelity Orangutan O/96.

Cables USB: WireWorld Revelation 2.0. Interconnect: Audio Note AN-Vx, Nordost Blue Heaven, Shindo Silver. Speaker: Auditorium 23.

Accessories Box Furniture Company D3S rack (source & amplification components).—Art Dudley

to Herbert von Karajan and the Berlin Philharmonic's recording of Brahms's *Ein deutsches Requiem* (LP, Deutsche Grammophon 2832 006). Additionally, the Thöress amps made clearer than usual the distinctions between different sections of the choir, the Vienna Singverein.

Comparisons

I made some direct comparisons between the Thöress 300Bs and my Shindo amps: the stereo Haut-Brion (\$10,995, 20Wpc) and the Corton-Charlemagne monoblocks (\$13,450/pair, 25Wpc). Some consistent differences

measurements, continued

transformer tap. However, into all three impedances in this graph, there is a spike of distortion in the midrange. I double-checked the measurement, and this behavior was consistent; I have no idea what it is due to, though it's fair to note that AD noticed no coloration that might have resulted from this behavior.

This is probably because the Thöress amplifier's distortion signature is heavily second-harmonic in nature

(figs. 8 and 9), which is not unmusical (see "Listening," March 2015). Of course, the perceived nature of the harmonic distortion will also depend on the amount of intermodulation distortion generated by the same nonlinear transfer characteristic, and in this respect the Thöress 300B can be rated as only fair. An equal mix of 19 and 20kHz tones at a peak level of 500mW into 8 ohms generated a 1kHz differ-

ence component at -43dB (0.7%), though the higher-order products at 18 and 21kHz were more than 20dB lower in level (fig.10).

Overall, the Thöress 300B monoblock measures well for a SET amp. As long as it is not used with low-impedance speakers, and the speakers are sufficiently sensitive not to be bothered by its low maximum output power, it can be recommended.—John Atkinson

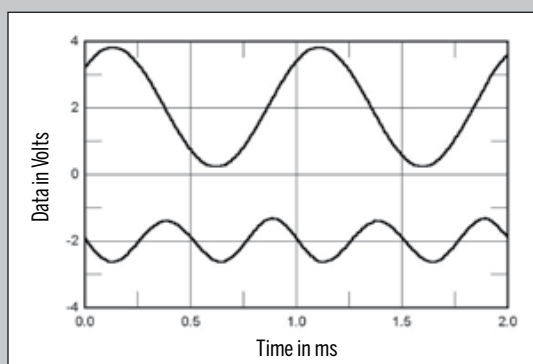


Fig.8 Thöress 300B, 1kHz waveform at 800mW into 8 ohms, 0.197% THD+N (top); distortion and noise waveform with fundamental notched out (bottom, not to scale).

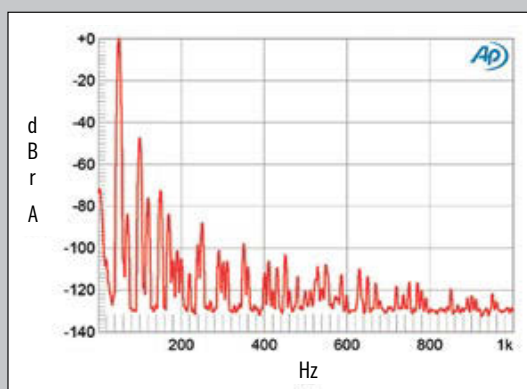


Fig.9 Thöress 300B, spectrum of 50Hz sine wave, DC-1kHz, at 500mW into 8 ohms (linear frequency scale).

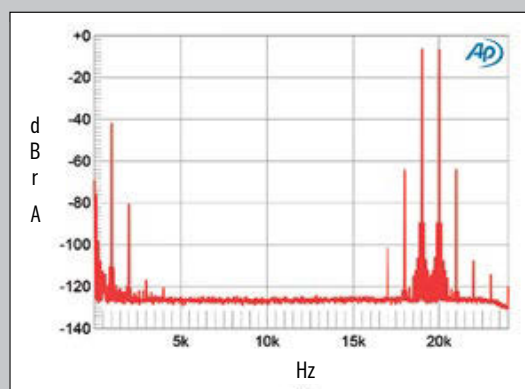


Fig.10 Thöress 300B, HF intermodulation spectrum, DC-30kHz, 19+20kHz at 500mW peak into 8 ohms (linear frequency scale).

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emerged. Notwithstanding the greater *crispness* of the Haut-Brion,³ neither Shindo model is as extended in its treble ranges as was the Thöress, which gave the Thöress a better sense of sparkle, particularly when reproducing piano. Whether for this or some other reason, the Thöress also had a more transparent, “hear-through” sound, especially evident with densely scored classical music. Yet both Shindo models had a greater sense of drive that seemed related to their better reproduction of upper-bass/lower-mid-range substance and body, as I heard when focusing on the cello and double bass in the Vienna Octet’s recording of Schubert’s Octet in F major (LP, Decca/Speakers Corner SXL 2028).

Other distinctions seemed related more to output power than to anything else, as I heard when listening to a recording of Bruckner’s Symphony 9 by Carl Schuricht and the Vienna Philharmonic (LP, EMI ASD 493). This recording was spellbinding through the Thöresses, thanks in equal parts to their smooth clarity and the very good sense of touch they allowed plucked strings in particular—as with the pizzicato notes following the work’s first big crescendo. On the downside, that crescendo was one of the few instances when the Thöresses’ relative lightness, compared to the Shindos, made itself known in a less-than-positive way: In the tutti at that point, the instruments, especially the brass, had a bit more glare than they should. But harshness did not intrude on that or on any dramatic peak that I listened to with the Thöresses

The first thing that impressed me about the sound of the Thöress 300B was its exceptionally good sense of touch.

through either of my pairs of speakers. Differences between the Thöress and Shindo amps were more pronounced through the DeVore O/96s—which, while easy to drive per se, are not as easy to drive as the Altec Valencias. With “Chelsea Bridge,” from *Gerry Mulligan Meets Ben Webster* (mono LP, Verve MG V-8343), the Shindo Haut-Brion did have more timbral substance, especially of the baritone sax and double bass. When I remade the comparison through the far more efficient Altecs, the difference was much smaller.

Conclusions

I have been wrong about lots of things. I was wrong about shawl collars and avocados and the Feelies and Ian Fleming and Mahler’s Symphony 8, none of which I used to like. Now I love them all—especially the Feelies. I still dislike Mexican food and Wilco and the film *Juno*, but I suppose I’ll retry them all every now and then. (Well, maybe not *Juno*: Life is too short for overpraised films with sitcom-caliber dialogue.) People change, and while it’s good to be resolute on certain matters, I believe the need for flexibility increases as one ages.

Happily, after beginning my relationship with single-ended-triode amps with unconditional love, I can now find it in my heart to approach SETs with *conditional* love: Love the good, disregard the mediocre, curse the bad. (Unconditional love should always be applied to people, never to things.) And the Thöress 300B mono power amplifier deserves that love. It’s a lively, colorful, tactile, well-textured, unambiguously musical amp that lacks any apparent flaws. It’s well designed, well built, and resolute and forthright in its styling—altogether an heirloom-quality piece of gear. Highly recommended for anyone who has both the means and a sympathetic playback system. ■

³ But see my “Listening” column in the February 2015 *Stereophile*.



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FOLLOW-UP BY JOHN ATKINSON

THIS ISSUE: Spendor's D7 tower and Audioengine's A2+ desktop speaker hang out in JA's test lab.

SPENDOR D7 LOUDSPEAKER

Sam Tellig wrote about Spendor's D7 loudspeaker in his column, "Sam's Space," in the November 2014 issue,¹ concluding that this English floorstanding speaker was "a splendid Spendor," and that "one might seriously question the need to spend any more than [\$5995] for a pair of speakers." What he found especially rare, for a relatively small speaker, was the D7's "authority, weight, and speed. You could spend far more for a speaker and not get such a fast, highly resolving sound, and such a sweet midrange."

We don't usually publish measurements of the products covered by *Stereophile's* columnists, unless the writer feels that there is something about the sound that merits further investigation. But in the case of the D7, some readers complained about the lack of measured results in comments posted to the website reprint of Sam's report.² In response, Jay Rein, of Bluebird Music, the brand's North American distributor, posted that "Bluebird Music has repeatedly said the D7s are the best speakers Spendor has ever made. We are more than willing to back up this claim by providing a pair of D7s to be measured and tested as you do in your regular reviews."

Accordingly, I asked Rein to ship a pair of D7s to me for measurement. (The serial numbers were 324000289 and '290.) I used DRA Labs' MLSSA system and a calibrated DPA 4006

microphone to measure the Spendor D7's frequency response in the farfield, and an Earthworks QTC-40 for the nearfield responses. The D7's voltage sensitivity is specified as 90dB/W/m; my estimate was close, at 89.3dB(B)/2.83V/m, which is above average. The D7's nominal impedance is specified as 8 ohms, with a minimum magnitude of 4.5 ohms. Fig.1 shows the measured impedance magnitude (solid trace) and electrical phase angle (dotted). The

The D7's farfield response is impressively even, with a couple of small peaks balanced by equally small dips.

minimum impedance was indeed 4.5 ohms, at 183Hz, and the magnitude remains above 6 ohms in the upper bass and from the upper midrange upward. Although the phase angle exceeds 40° at 53 and 76Hz, the magnitude is high at those frequencies, ameliorating the extra current demand imposed by the impedance phase.

Though there is a slight discontinuity at 125Hz, the impedance traces are free from the small wrinkles in the midrange that would suggest the presence of cabinet resonances. Nevertheless, when I investigated the vibrational behavior of the enclosure panels with a plastic-tape accelerometer, I found a strong mode at 391Hz that was most pronounced on the side panels level with the midrange/woofer (fig.2). This mode disappeared lower on the panel, replaced by one much lower in magnitude, at 348Hz. It's possible, therefore, that despite this mode's high amplitude, the areas affected are small enough that it won't lead to coloration or midrange congestion.

The black trace above 300Hz



Stereophile Spendor D7 Impedance (ohms) & Phase (deg) vs Frequency (Hz)

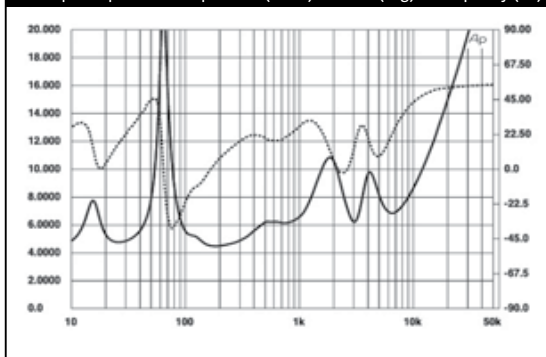


Fig.1 Spendor D7, electrical impedance (solid) and phase (dashed) (2 ohms/vertical div.).

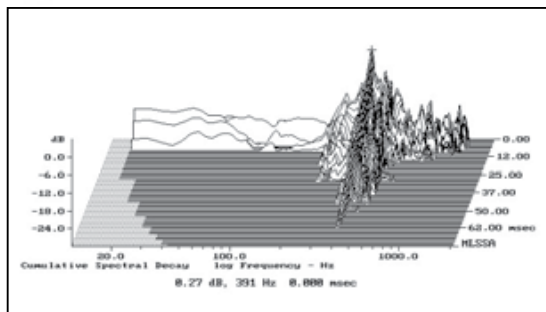


Fig.2 Spendor D7, cumulative spectral-decay plot calculated from output of accelerometer fastened to center of side panel level with mid/woofer (MLS driving voltage to speaker, 7.55V; measurement bandwidth, 2kHz).

1 The D7 costs \$5995/pair (add \$1000 for a premium finish). Manufacturer: Spendor Audio Systems Ltd., G5 Ropemaker Park, South Road, Hailsham, East Sussex BN27 3GY, England, UK. Tel: (44) (0)1323-843474. Web: www.spendoraudio.com. US distributor: Bluebird Music Limited, 2299 Kenmore Avenue, Buffalo, NY 14207. Tel: (416) 638-8207. Fax: (416) 638-8115. Web: www.bluebirdmusic.com.

2 See www.stereophile.com/content/spendor-d7-loudspeaker.

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shows the Spendor's farfield anechoic response, averaged across a 30° horizontal window centered on the tweeter axis. Below 300Hz, the black trace shows the complex sum of the nearfield outputs of the mid/woofer, the woofer, and the vent in the base of the enclosure. The green trace is the mid/woofer's output, the blue trace the woofer's, and the red trace the vent's, each scaled in the ratio of the square root of the radiating area. The port has a peak in its upper-midrange output, but this will be subjectively inconsequential given that the port fires away from the listener. The port's output covers a much wider bandpass than in a traditional reflex alignment; perhaps that slight discontinuity in the impedance traces at 125Hz is due to the vent's actually behaving with some aspect of transmission-line tuning, which extends the port's output higher in frequency than is usually the case. The port's output is also low in level, which suggests that the alignment has been optimized for the fact that the port is so close to the floor.

The minimum-motion notch in the woofer's response (blue trace) occurs at 27Hz and the mid/woofer's notch at 22Hz, but the two drive-units'

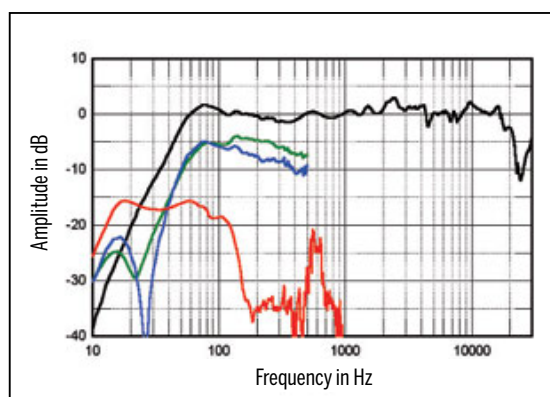


Fig.3 Spendor D7, anechoic response on tweeter axis at 50", averaged across 30° horizontal window and corrected for microphone response, with nearfield responses of: mid/woofer (green), woofer (blue), port (red), with complex sum of nearfield responses, respectively plotted below 500Hz, 500Hz, 950Hz, 300Hz.

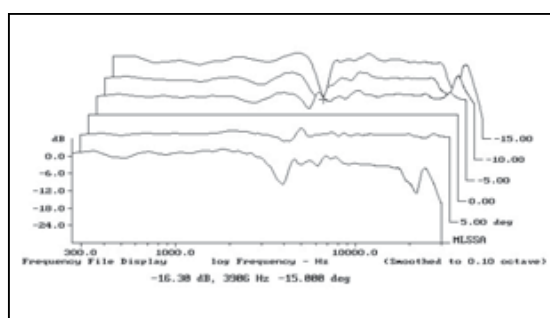


Fig.5 Spendor D7, vertical response family at 50", normalized to response on tweeter axis, from back to front: differences in response 15-5° above axis, reference response, differences in response 5-10° below axis.

outputs in the mid- and upper bass are otherwise similar. However, the woofer's output starts to gently roll off above 100Hz, and is 3dB below the mid/woofer's output at 500Hz. The D7 is thus a "2½-way" rather than a three-way design, with the low frequencies shared by the LF drivers. This seems to be an effective technique, judging from ST's favorable comments about the D7's bass reproduction: "I take back everything bad I've written about floorstanding speakers: troublesome bass, poor integration of drivers in the nearfield, etc. . . . Few loudspeakers can convey the power without the aid of a pesky subwoofer or two. Or without pooping out. The D7s could, given enough power."

Higher in frequency in fig.3, the soft-dome tweeter's output drops off rapidly above 18kHz, but the D7's farfield response is impressively even, with a couple of small peaks balanced by equally small dips. Whether this will translate into a flat perceived balanced will depend also on the speaker's dispersion, of course, and the D7's horizontal radiation pattern is shown in fig.4. This graph reveals that the mid/woofer's output drops off rapidly to the speaker's sides above 2kHz, which results in an off-axis flare at the bottom of the tweeter's passband. Whether the flare results in

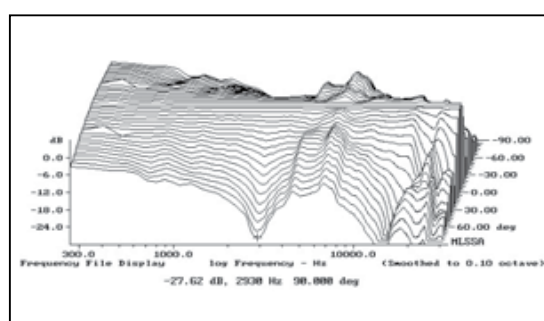


Fig.4 Spendor D7, lateral response family at 50", normalized to response on tweeter axis, from back to front: differences in response 90-5° off axis, reference response, differences in response 5-90° off axis

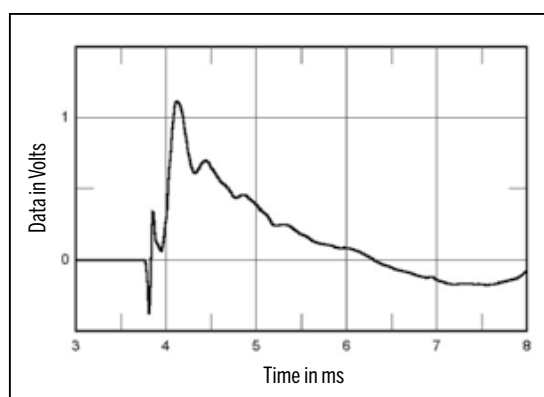


Fig.6 Spendor D7, step response on tweeter axis at 50" (5ms time window, 30kHz bandwidth).

Overall, the Spendor D7 offers excellent measured performance... "here is a modern interpretation of the classically neutral, accurate and well integrated design."

a slightly bright balance, or the off-axis lack of energy half an octave lower in frequency results in a slightly polite balance, will depend both on the music played and on the listening-room acoustics. Fig.4 also indicates that the tweeter maintains its top-octave output over a wider angle than is usual with a 1" dome. In the vertical plane (fig.5), the D7 should be listened to within 5° of the tweeter axis, which is 35" above the floor.

Turning to the time domain, the Spendor's step response on the tweeter axis (fig.6) is reminiscent of BBC-legacy designs, with the tweeter connected in inverted acoustic polarity and its output leading that of the positive-polarity lower-frequency units by a quarter of a millisecond or so. The decay of the tweeter's step blends with the start of the woofers' step on this axis, however, implying optimal crossover design. The decay of the D7's output is clean in the tweeter's passband (fig.7), though a ridge of delayed energy is apparent at 4.2kHz, the frequency of a small peak in the D7's HF-axis response.

Overall, the Spendor D7 offers excellent measured performance. I must agree not only with Sam Tellig but also with Martin Colloms, who wrote of the D7, in the July-September 2013 issue of *The HiFi Critic*: "here is a modern interpretation of the classically neutral, accurate and well integrated design."—John Atkinson

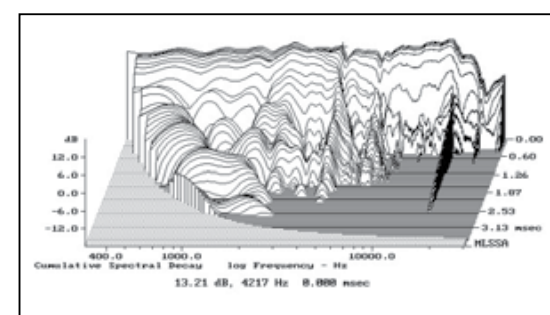


Fig.7 Spendor D7, cumulative spectral-decay plot on tweeter axis at 50" (0.15ms risetime).



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I, too, was impressed. I bought a pair of the tiny A2s—each measures just 6" H by 4" W by 5.25" D—to use in our kitchen TV system, where they’ve done sterling service ever since, hooked up to the headphone output of a Samsung flat-panel TV. My only quibble was that the bass boost the A2 uses to squeeze enough low frequencies out of its woofer, which has a Kevlar cone just 2.75" in diameter and a rubber half-roll surround, makes the speaker intolerant of positioning close to room corners, where it sounds hooty.

At the end of 2013, Audioengine replaced the A2 with the A2+.⁴ This appears to be identical to the A2, but adds to the left, master speaker a USB 1.1 input for digital audio and a pair of output jacks, used to feed an unfiltered, unequalized signal to a subwoofer(s). (The right speaker in each pair is a conventional passive type; the left contains the amplifiers for both channels, the volume control, left and right input RCA jacks, a 3.5mm stereo input jack, and a pair of output terminals to feed the other speaker.) The tweeter is still a 3/4" (20mm) silk-dome unit, the internal amplifier still a 15Wpc monolithic analog type. The price has increased from \$199 to \$249/pair.

Stephen Mejias had originally intended to write about the A2+ in his column, “The Entry Level,” but left the magazine before being able to do so. When I finally got around to trying them out, I couldn’t get any sound, from either the USB port or the line inputs. I asked for replacement samples. (The original samples had the serial number 13052000078W, the replacements 14011509708B.)

Before I performed any measurements, I compared the A2+s with my pair of original A2s. The two pairs of Audioengines sounded identical, and when I listened critically



A heck of a speaker at a heck of a price!

to the new versions, driven by Pono’s PonoPlayer (reviewed elsewhere in this issue) and with the A2+s set up on 24"-high stands, I was impressed by how well these tiny speakers managed to fill my listening room with sound. No, they didn’t play at head-banging levels, but with both classical chamber music and well-recorded rock they sounded clear and clean. Low bass was missing in action, of course, but in free space, the upper bass was in good balance with the midrange. The bass in “There Ain’t No Sweet Man That’s Worth the Salt of My Tears,” from Diana Krall’s *Glad Rag Doll* (24-bit/96kHz ALAC file), lacked body but still sufficiently supported the music. Krall’s husky voice had a slightly woody coloration, though this was relatively mild in degree. The top octave lacked some air.

Once I’d listened to the new speakers and confirmed that their sound quality lived up to Bob Reina’s evaluation of the originals, I took

them into the test lab. To examine their behavior via USB, I used my 2012-vintage MacBook Pro, running on battery power. The Mac USB Prober utility reported that the Audioengine A2+’s USB port operated in the usual isochronous adaptive mode, and that it would accept 16-bit data with sample rates of up to 48kHz. This is what I’d expected, given that the speaker uses the TI/Burr-Brown PCM2704C USB receiver/DAC chip. The Manufacturer string was reported as “Audioengine,” the Product String as “Audioengine 2+,” and the Device Vendor ID as “Texas Instruments Japan.”

With the volume control at its maximum, a full-scale digital signal via USB gave a level at the right-speaker output terminals of 9.823V, equivalent to 12W into 8 ohms. The only digital-domain test I performed was to examine the DAC’s resolution. Fig.1 is a spectral analysis taken at the speaker terminals while the speaker decoded 16-bit data representing a dithered 1kHz tone at -90dBFS. The tone is reproduced 5dB too high in level, and some low-level, low-order harmonics can be seen. The noise floor lies between the 14- and 15-bit level, which again is what I would expect

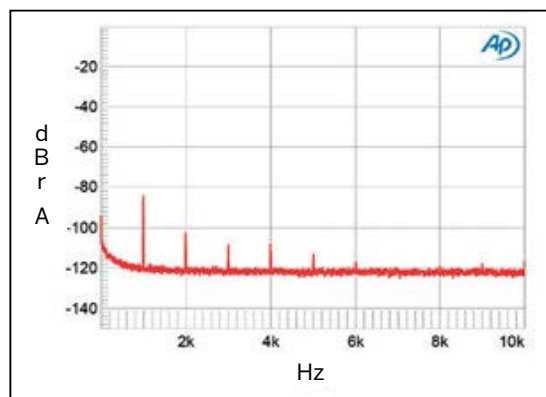


Fig.1 Audioengine A2+, spectrum with noise and spurs of dithered 1kHz tone at -90dBFS with 16-bit data (20dB/vertical div.).

3 See www.stereophile.com/standloudspeakers/1207ae/index.html.

4 The A2+ costs \$249/pair in black or white. Manufacturer: Audioengine Corp. Tel: (877) 853-4447. Web: www.audioengineusa.com.

Our 5th Anniversary!!!

What it means for you...

Dear Reader,

It's been a great ride. Frankly speaking, it's hard for me to believe that it was five years ago (!) that *Get Better Sound* was first released.

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How do I know? It's all the wonderful e-mails and calls that I get every day from satisfied owners wishing to share their experiences.

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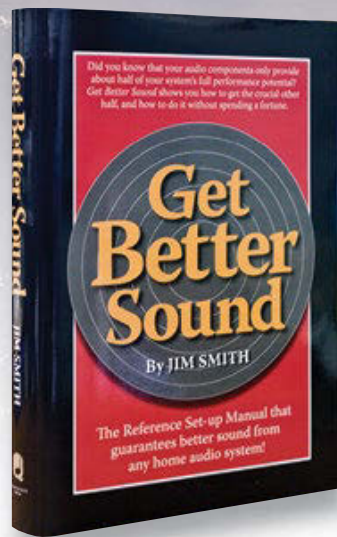
From what I can tell, it's because the *GBS* book and DVDs are approachable and accessible. As are the free *Quarter Notes* newsletters—already equivalent in size and scope to another book—that come with the purchase.

Of course, none of that would be possible if the tips in *GBS* didn't actually work!

And here's the other thing that amazes me. Folks seem to be genuinely surprised that I answer their e-mails promptly. Who knew that basic courtesy would be held in such high regard?

No more incomplete advice

It saddens me that there is so much misinformation out there, especially on the Internet.



Here's an example—most audiophiles have adopted some set-up guide or other. There are lots of them available from various manufacturers. Interestingly, they ALL differ in concept and execution. But which one is correct? In my experience, they all have a portion of the

truth, but none have the whole picture. It's incomplete.

If you ignore almost all of the 202 tips in *Get Better Sound*, and you only focus on set-up tips #59-89 in the book, and/or on Disc 2 in the 3-disc DVD set, you could lift your system's performance substantially. It's not rocket science. It just requires a little commitment on your part.

The 10% rule

Another partial truth is related to various so-called rules—such as the “rule of thirds.”

I've voiced countless systems that were set up with one of the set-up guides, or according to one of the “rules.” In every case, we were able to dramatically elevate the performance of each system—simply by using the proven basic information from *GBS*.

So I, with a little help from my clients, have developed the 10% rule. Any changes you might get from new electronics or cables—at any price—will equal perhaps 10% of what the

improvement would be by simply applying the tips found in *Get Better Sound*!

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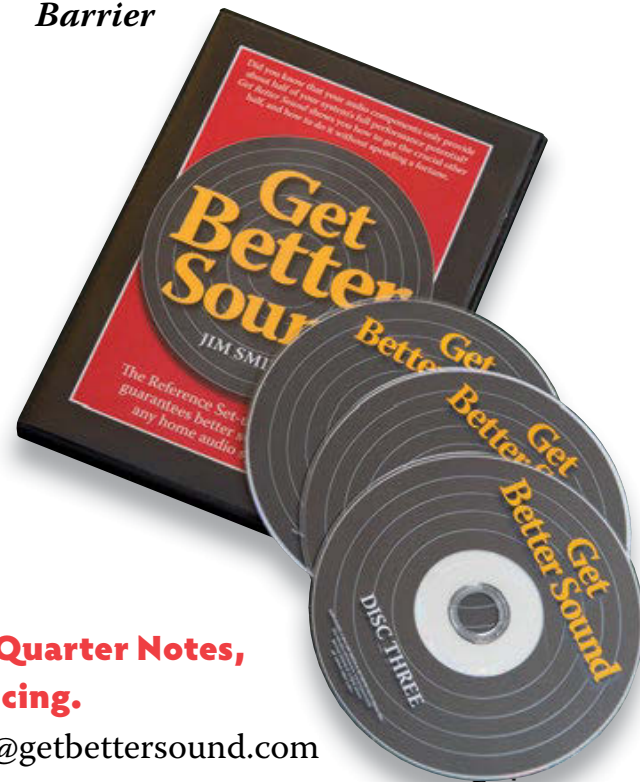
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from the PCM2704C DAC chip.

In the analog-domain tests, the A2+'s line input impedance of 4.5k ohms was lower than that of both the original speaker and the specified 10k ohms. The line input preserved absolute polarity (*ie*, was non-inverting), and the maximum gain was 27.6dB, which is on the high side.

The passive, right speaker had an estimated sensitivity of 83dB(B)/V/m, and its impedance remained between 4 and 10 ohms through most of the audioband (fig.2). The magnitude saddle centered on 65Hz in fig.2 suggests only modest low-end extension, though the low height of the lower-frequency peak suggests that

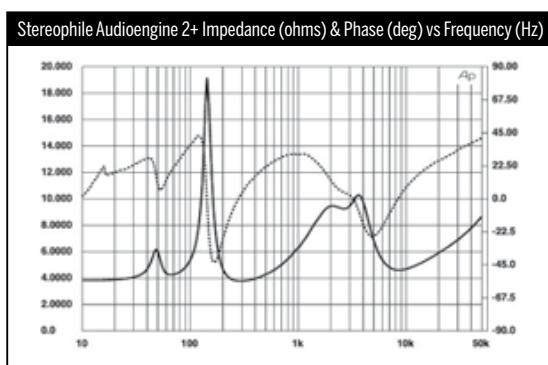


Fig.2 Audioengine A2+, passive sample, electrical impedance (solid) and phase (dashed) (2 ohms/vertical div.).

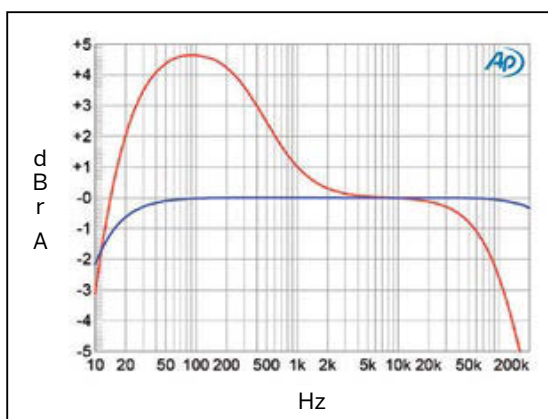


Fig.3 Audioengine A2+, built-in amplifier frequency response at 1V into 8 ohms, measured at: right-channel speaker output jacks (red), subwoofer output jacks (blue) (2dB/vertical div.).

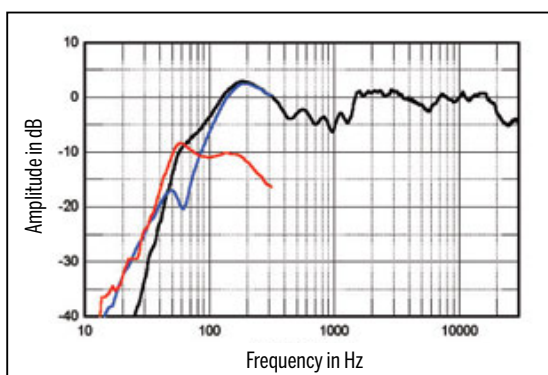


Fig.4 Audioengine A2+, anechoic response on tweeter axis at 50", averaged across 30° horizontal window and corrected for microphone response, with nearfield responses of woofer (blue), port (red), and complex sum of nearfield responses (black), all plotted below 300Hz.

the alignment is more overdamped than in the A2. The red trace in fig.3 shows the internal amplifier's frequency response, taken at the speaker output terminals. As in the A2, a modest, 4.7dB boost centered on 80–100Hz is used to extend the acoustic output in the midbass, though this will reduce the dynamic range at low frequencies. This boost was independent of the volume-control setting. The blue trace in this graph is the response at the output RCA jacks. No equalization is applied.

For the acoustic measurements, I used DRA Labs' MLSSA system and a calibrated DPA 4006 microphone to measure the Audioengine A2+'s frequency response in the farfield, and an Earthworks QTC-40 for the nearfield responses. The A2+'s farfield response on the tweeter axis (fig.4 above 300Hz) is identical to the A2's: impressively flat and extended in the treble, though with the upper midrange shelved down by up to 5dB. The rise in measured output below 400Hz will be partly due to the nearfield measurement technique, but mainly reflects the equalization shown in fig.3. The individual responses of the woofer (blue trace) and port (red) are shown, scaled in the ratio of the square roots of the radiating areas. I have shown the port's output only up to 300Hz; above that frequency, the

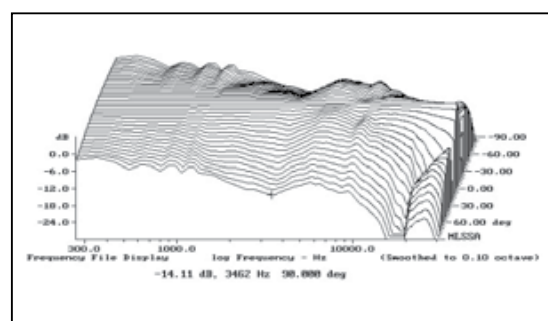


Fig.5 Audioengine A2+, lateral response family at 50", normalized to response on tweeter axis, from back to front: differences in response 90–5° off axis, reference response, differences in response 5–90° off axis.

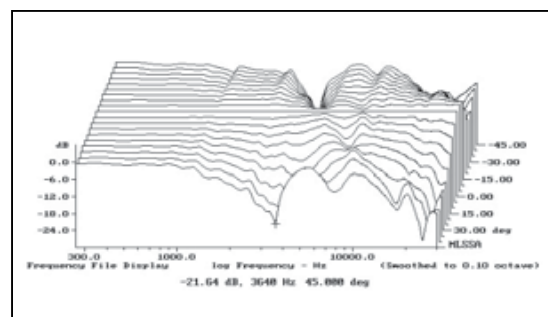


Fig.6 Audioengine A2+, vertical response family at 50", normalized to response on tweeter axis, from back to front: differences in response 45–5° above axis, reference response, differences in response 5–45° below axis.

measurement was affected by leakage from the woofer. The black trace in the bass is the sum of the port and woofer outputs, taking into account acoustic phase; even with the equalization, the A2+ rolls off below 120Hz or so.

Fig.5 shows the A2+'s lateral dispersion, normalized to the tweeter-axis response. As with the A2, there is a slight flare at the bottom of the tweeter's passband, due to the on-axis depression filling in to the speaker's sides. The tweeter's dispersion in the top octave is restricted, which explains why I found the sound lacking a touch of top-octave air. In the vertical plane (fig.6), a suckout develops in the crossover region more than 5° above the tweeter axis. To get the most neutral tonal balance from this speaker, be sure to listen on or below the tweeter axis.

The A2+'s step response on the tweeter axis (fig.7) indicates that both drivers are connected in positive acoustic polarity. While the cumulative spectral-decay plot (fig.8) is clean in the treble, there is some delayed energy associated with the upper-midrange step in the frequency response.

My experience of the + version of the Audioengine A2 was pleasant indeed—sufficiently so that I will reinstate it in “Recommended Components,” which appears elsewhere in this issue. A heck of a speaker at a heck of a price!

—John Atkinson

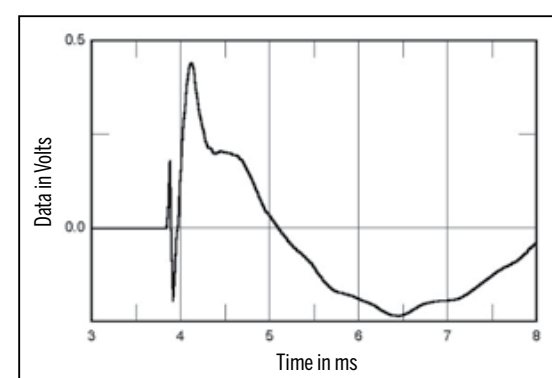


Fig.7 Audioengine A2+, step response on tweeter axis at 50" (5ms time window, 30kHz bandwidth).

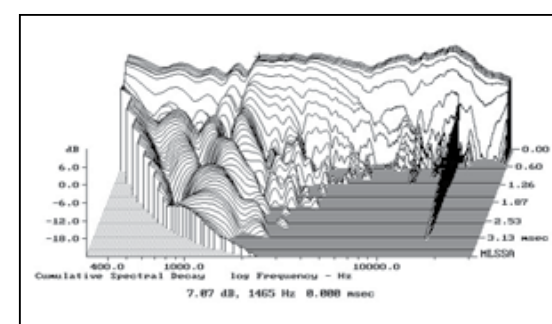


Fig.8 Audioengine A2+, cumulative spectral-decay plot on tweeter axis at 50" (0.15ms risetime).

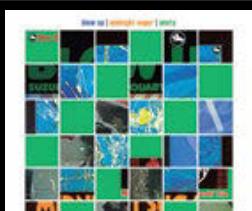


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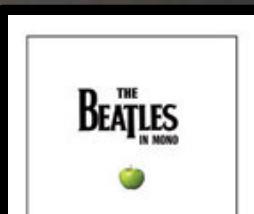
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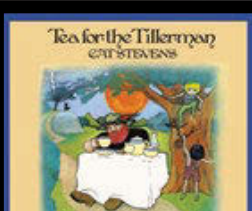
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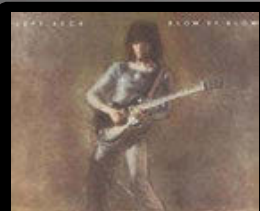
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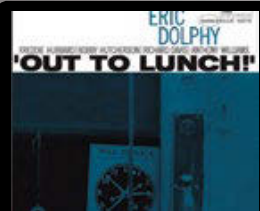
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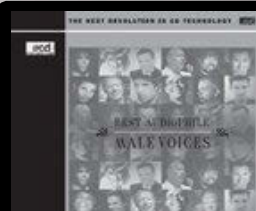
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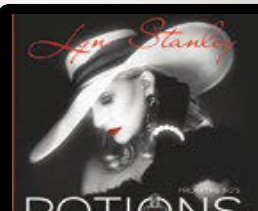
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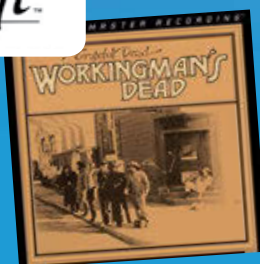
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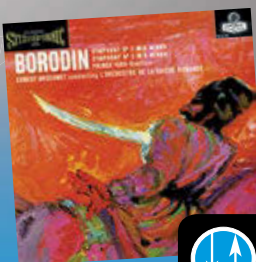
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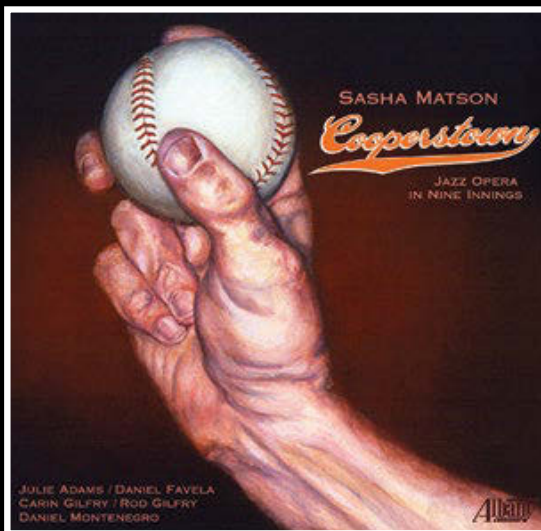
RECORD REVIEWS

A jazz opera about baseball? Uh-huh. Sung in colloquial English? A recording produced by the editor of this magazine? Sounds like the kind of situation where I should have nodded politely and just said *No*. What about ethics—all the folks who already think that review-based outlets like *Stereophile* are bought and paid for? Pony up and we'll write you a rave, right? Well, no. Absolutely not. But—Recording of the Month?

First, let's hear from the composer: "I've often thought the best advice I've ever read on making art was from Leonard Cohen, when he said words to the effect of: 'You don't want to say *tree*, you want to say *sycamore tree*. . . . You get the idea—the more specific things are, the more flavor and resonance they have, and, oddly enough then, the more universal they become, as people can connect. Cut to Cooperstown, where we moved in 2000. And I literally look out our back door, across the lawn, at the Baseball Hall of Fame. . . . The rhythms and pacing of baseball I find very musical—and the balance between individual action and the team. Stadium organ . . . all those things appeal to me. So I created a story that hangs on *Otello*—but set in the world of MLB."

The voices here are all fine. Soprano Julie Adams (Lilly Young), a winner of the 2014 Grand Finals of the Metropolitan Opera's National Council Auditions. Daniel Favela (Marvin Wilder), an equally talented tenor, has jazz in his background, having sung with the late James Moody. A graduate of Juilliard, mezzo-soprano Carin Gilfry (Jan Green) has sung opera in Santa Fe and Los Angeles, and at Glimmerglass. Her father, Rod Gilfry (Dutch Schulhaus), has had two recordings nominated for Grammys. Tenor Daniel Montenegro (Angel Corazon), arguably the most recognizable name here, has appeared with the Minnesota Opera, the Washington National Opera, and on Sony Classi-

EDITOR'S PICK RECORDING OF THE MONTH



SASHA MATSON *Cooperstown: Jazz Opera in Nine Innings*

Julie Adams (Lilly Young), soprano; Carin Gilfry (Jan Green), mezzo-soprano; Daniel Favela (Marvin Wilder), Daniel Montenegro (Angel Corazon), tenors; Rod Gilfry (Dutch Schulhaus), baritone; Jason Rigby, saxophones; Russ Johnson, trumpets; Sean Wayland, keyboards; Rich Mollin, double bass; Gernot Bernroider, drums; Sasha Matson, conductor
Albany TROY1553/54A (2 CDs). 2015. John Atkinson, prod., mastering; Mike Marciano, eng., mix; Bill Schnee, Kenton Fukuda, engs.
DDD TT: 101:63

PERFORMANCE ★★★★★

SONICS ★★★★★

cal's *American Tenors* DVD.

Librettist Mark Miller's words swing between the clever, overwrought and downright odd: "You clueless sawed-off runt! / Your little hat's too tight! / Go piss on the plate! / It needs a light dustin'."

The music is jazz, of a sort. In his liner note, Matson writes, "I used as a model the great Blue Note stereo recordings of the late '50s and early '60s by Rudy Van Gelder."

While the music of *Cooperstown* will never be mistaken for what Blue Note recorded in its glory years, Matson

repeats some ideas, and things sometimes get a bit formulaic, many musical moments here are worth repeated listening. Each "inning" (also called scenes) in the libretto is introduced by a short instrumental jazz chart. Much of the best singing occurs when Adams and Gilfry duet, as they do in short passages in the second and fourth innings. Another great touch is the Hammond C3 organ—a ubiquitous and cherished part of baseball—played by Sean Wayland. Wayland also adds touches of acoustic piano and Fender Rhodes. The horn players are Russ Johnson on trumpet and Jason Rigby on saxophones. Double-bassist Rich Mollin and drummer Gernot Bernroider complete this tight, aware, and really musical band.

Perhaps Matson's greatest compositional strength is the way he transitions between vocal passages and instrumental jazz, which in lesser hands could make for unpleasant collisions. In Scene Three, as Angel and Dutch discuss the differing motivations of baseball fans and players, Jan finishes a line by repeating the phrase "rode in parades." Sax and organ join in, before Angel and Dutch sing a duo. Then the trumpet, bass, and cymbals play a rising theme. Later, after Marvin wonders why he's not a star—"What do they see in him / They don't see in me"—the band downshifts into a groove-heavy theme similar to the scenes opening music, led by the trumpet.

Perhaps the strongest element of this entire project, all of it was beautifully recorded at Systems Two Recording, in Brooklyn, New York, and Schnee Studio, in Studio City, California, by Mike Marciano and Bill Schnee, both of whom know a few things about the classic Blue Note sound as well as recording voice. How *Cooperstown* was recorded is detailed in a long, informative liner note.

Well sung and inventively composed, this intriguing blend of classically trained voices with jazz-flavored horns and drums is a bracingly new mix of genres.—Robert Baird

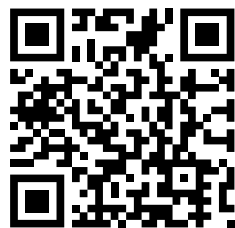
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CLASSICAL

**RICHARD STRAUSS***Four Last Songs, Ein Heldenleben*

Anna Netrebko, soprano; Staatskapelle Berlin, Daniel Barenboim
Deutsche Grammophon 479 3964 (CD). 2014.
Friedemann Engelbrecht, prod.; René Möller, eng.
DDD. TT: 68:19

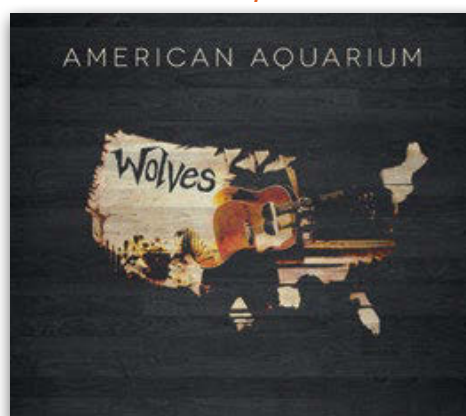
PERFORMANCE ★★★★★

SONICS ★★★★★

After Anna Netrebko's exclusively Russian days, she impressed in Donizetti and Bellini, then graduated magnificently to Puccini and Verdi. Richard Strauss, for the moment, seems beyond her. She has the voice—it has grown and filled out handsomely—and I wasn't particularly bothered by her instability of tone in the first of the *Four Last Songs*, where an unwelcome wobble crept in. But these songs require a style and depth of expression that Netrebko does not seem, as yet, comfortable with. She sounds as if she's reining in her feelings in an effort not to oversing; the overall effect is one of lethargy. The long, soaring phrases should sound effortless, but Netrebko sounds awkward, tightening her tone to make certain she will take a long phrase in one breath. It sounds like work. The last two songs find her in better shape, and the beautiful phrase near the close of "Beim Schlafengehen," with its turn around a high B-flat, is lovely. Netrebko may be too optimistic and young for these songs; she needs seasoning.

Barenboim's *Heldenleben* is beautifully played by the Staatskapelle Berlin (as are the *Songs*—no surprise), but it lacks both depth and humor. The concept of this work being a story escapes Barenboim: the opening horn-and-low-strings fanfare that introduces us to the Hero is a damp handshake, though there's lovely violin work in the "Pauline" movement. For great Strauss playing and singing, go elsewhere.—**Robert Levine**

ROCK/POP

**AMERICAN AQUARIUM***Wolves*

Last Chance ZIX40827464 (CD). 2015. American Aquarium, Brad Cook, prods.; Jon Ashley, prod., eng.; Evan Bradford, eng. DDD. TT: 40:04

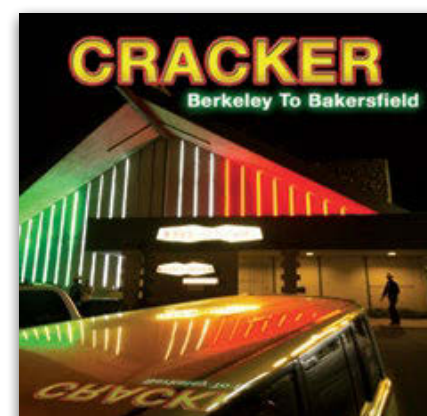
PERFORMANCE ★★★★★

SONICS ★★★★★

There's nothing fishy about this Raleigh, North Carolina, outfit. It's about as unassuming and straightforward as bands come. In the mid-1980s, we might've located American Aquarium among the so-called New Sincerity movement of US guitar bands; in the early '90s, perhaps in the alt-country cadre of nuevo twangers; and since then, in the increasingly amorphous "Americana" genre. I prefer to think of the group as simply "heartland rock"—the hallowed turf that gave us our Segers, our Springsteens, our Pettys, our Earles.

A signature moment arrives roughly midway through this, the group's eighth long-player and the follow-up to 2012's *Burn. Flicker. Die.* The track's called "Old North State," and if you've already discerned the general topic, well, treat yourself to some eastern-style barbeque, 'cos it's a spicy li'l ditty about home and heart. "Carolina, oh, I'm coming home," charismatic, leather-and-honey-lunged frontman BJ Barham initially sighs, then sings the line again with exuberance.

Indeed, with this 10-song gem including everything from warm, pulsing organs and reassuringly humming pedal steel to sturdy-as-jackhammer drumming and, on several tracks, Memphis-styled horns, American Aquarium manages to breathe fresh life into the long-dormant Southern Rock genre, minus any of that nagging rebel-flag-waving baggage. As envisioned by main producer Brad Cook, of avant-Americana auteurs Megafaun, *Wolves* is a front-row experience in which vocal inflection, every guitar nuance, every percussion flourish receives equal prominence.—**Fred Mills**

**CRACKER***Berkeley to Bakersfield*

429 Records 16026 (2 CDs/download). 2014.
Drew Vandenberg, eng., mix; David Barbe, Bond Bergland, Mark Golde, David Lowery, John Morand, asst. engs. DDD.? TT: 70:54

PERFORMANCE ★★★★★

SONICS ★★★★★

Cracker has been all over the map stylistically, so setting their new double-wide down in the musical territories of Berkeley and Bakersfield makes sense. In an odd way, those cities' polar-opposite cultures perfectly capture Cracker's defiant essence: nerdy, punkish hippie rock with an ever-present country twang.

On the Berkeley disc we get the original Cracker of 1992–93 in nine songs reminiscent of their early albums, with plenty of sound and fury aimed at the plutocracy. "Torches and Pitchforks" (not hard to imagine what that one is about) and "March of the Billionaires" are typical, with lyrics like "we will fight your bought-off congressmen, / you cannot take what isn't yours."

Disc 2 sports a different cast of musicians and heads a couple hundred miles inland and south, geographically and musically, to California's conservative agricultural heartland—what us locals call the Valley. Cracker has subversively flirted with country music for years, mostly in that Rolling Stones caricature kind of way (see *Countrysides* or *O Cracker Where Art Thou?*). But here the band goes all in, achieving an authentic Bakersfield sound that both Keith Richards and Gram Parsons could only dream of.

And it works! Second-in-command Johnny Hickman has a truck-driving voice. His California Country Boy could fool anyone into thinking these guys were Kern County born and bred, with a driving steel guitar and a four-on-the-floor beat, though the effect is lessened when David Lowery takes back the mike. Still, this is easily the band's best album in years.

—**Jon Iverson**

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SHE & HIM Classics

Columbia 88875 01599 2 (CD). 2014. M. Ward, prod.; Pierre de Reeder, Tom Schick, engs. AAD.? TT: 39:13

PERFORMANCE ★★★★★

SONICS ★★★★★

In their other lives, Zooey Deschanel and M. Ward are, respectively, a renowned TV and film actress, and a postmodern singer-songwriter-guitarist whose solo albums and side project Monsters of Folk have won him plenty of popular and critical accolades. Together the two sound charming, almost like vintage Linda Ronstadt and Tom Waits at their most unassuming.

Following three albums of mostly original Deschanel material and a 2011 Christmas album, She & Him take a nostalgic turn and do the en vogue turning-back-the-musical-clock thing. On *Classics*, they tackle a baker's dozen songs from yesteryear, by writers ranging from Charles Aznavour and Burt Bacharach to Carole King.

Beginning with the oft-recorded, mid-1930s jazz nugget "Stars Fell on Alabama," an understated reverence blankets *Classics*; there's nothing kitschy here. Deschanel, who thankfully doesn't resort to vibrato to sound authentic, sounds absolutely gorgeous in the 1964 R&B smash "Oh No, Not My Baby," which features sparkling accompaniment by drummer Jim Keltner, who's all over this album. Trombone Shorty appears on several tracks, adding his signature sultry elegance to the 1957 pop chestnut "It's Not for Me to Say."

Only "Unchained Melody," featuring the Chapin Sisters, bogs down, straying into dirge-land. But throughout, as in Deschanel's fresh update of Dusty Springfield's "Stay Awhile," and in the duo's seductive vocal interplay on the Sammy Cahn-Jule Styne classic "Time After Time," the mood is intimate, inviting, and sonically soothing.

—David Sokol

JAZZ



FRESH CUT ORCHESTRA From the Vine

Mike Cempola, alto/tenor saxophones, bass clarinet, flute; Mark Allen, baritone/soprano saxophones, bass clarinet, flute; Josh Lawrence, trumpet; Brent White, trombone; Matt Davis, guitar; Tim Conley, laptop, guitar; Brian Marsella, piano, Rhodes, keyboards; Jason Fraticelli, double bass; Anwar Marshall, drums; François Zayas, bongos, percussion

Ropeadope RAD-265 (CD). 2014. Jason Fraticelli, Josh Lawrence, Anwar Marshall, prods.; Glenn Barratt, eng. DDD. TT: 46:05

PERFORMANCE ★★★★★

SONICS ★★★★★

Three distinct compositional voices emerge on *From the Vine*, a stunning debut by the 10-piece Fresh Cut Orchestra, out of Philadelphia. Bassist Jason Fraticelli leads off with his six-movement "The Mothers' Suite," a groove-heavy electro-acoustic work full of harmonic depth, sonic surprise, and melodic power, thanks to the band's four beautifully voiced horns. Trumpeter Josh Lawrence weighs in with "Uptown Romance," a ballad with hints of Ellington and Mingus that shows the group's bona-fide acoustic chops. Drummer Anwar Marshall offers the closing "Sanguine," alive with jittery electronic percussion, paired bass clarinets, and gorgeously layered Rhodes and guitar textures courtesy Brian Marsella and Matt Davis, respectively.

Along with their virtuosity and adventurous ears, Fresh Cut's three co-leaders—Fraticelli, Lawrence, and Marshall—approach sound in a refreshing way. Marsella's piano, Tim Conley's atmospheric laptop and shred guitar paired with Davis's cleaner singing tone, François Zayas's alert bongos cutting through the mix at the right moments: all the elements are in balance.

Fraticelli's bass tone is round and fat, more saturated than is typical in today's jazz. His solo interlude, "Elegy for a Mom," leads into the almost Nyroesque balladry of "The Funeral," with subtle electronic pulses, plaintive guitar lines, and delicate flutes. —David R. Adler



RED GARLAND TRIO Swingin' on the Korner: Live at Keystone Korner

Red Garland, piano; Leroy Vinnegar, bass; Philly Joe Jones, drums
Elemental 5990426 (2 CDs). 2014. Todd Barkan, Zev Feldman, prods.; unidentified eng. ADD? TT: 2:09:30

PERFORMANCE ★★★★★

SONICS ★★★★★

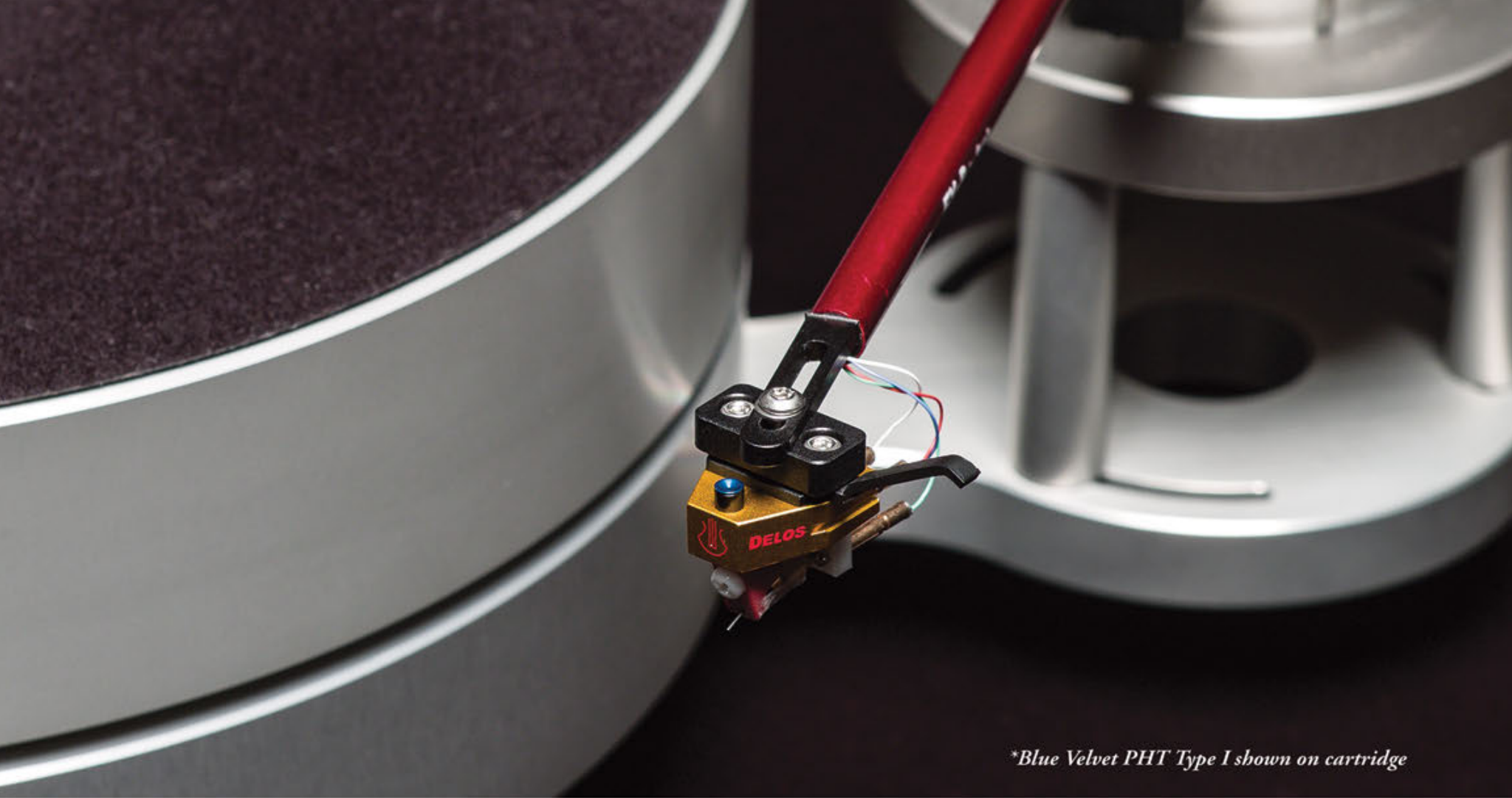
Red Garland died in 1984. Inevitably, awareness of his greatness is fading into the shadows of history. But we Garland fans who remain are hard-core. We can't get enough of him. Guess how we feel about suddenly acquiring two hours of previously unknown Garland.

The recordings comes from a week-long engagement at Keystone Korner, in San Francisco, in 1977. It was the first and last time that Garland, Leroy Vinnegar, and Philly Joe Jones played together. It's all here: Garland's deep blues feeling; his bulletproof swing; his suave, almost casual sense of style. Unmistakable, rich block chords (including beautiful wrong notes) become tinkly, silvery, single-note melodies. With effortless, life-affirming sprightliness, Garland rides the groove.

There are headlong swingers like "Billy Boy" (harder, looser, and longer than Ahmad Jamal's famous version) and a killer "Love for Sale." There are tender, elegant ballads like "It's Impossible" and "Never Let Me Go." Some tunes are burners *and* ballads, like "On a Clear Day."

The recording comes from cassette board tapes. The sound is flat and airless and leaves out Keystone Korner. The booklet is brilliant, with newly unearthed gig photos and 40 pages of heartfelt remembrances from Garland authorities: Nat Hentoff, Ira Gitler, etc.

Perhaps Red Garland's enduring appeal is that he was the last major jazz pianist of the pre-modern era, after which the world became relativist and permanently off-center. His music is confident in a way that is no longer possible. —Thomas Conrad



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Impulse! B002176502 (CD). 2014. Jean-Philippe Allard, project supervisor; Jay Newland, editing, audio restoration. AAD? TT: 76:04

PERFORMANCE ★★★★★

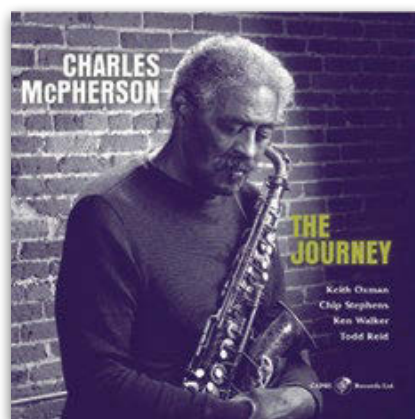
SONICS ★★★★★

In the discographies of Charlie Haden and Jim Hall, duos loom large. Sessions with Pat Metheny, Keith Jarrett, Ron Carter, Bill Evans, Hank Jones, and Kenny Barron spring to mind. Now comes this essential, pristine-sounding live date from 1990, at the Montreal Jazz Festival. The tunes are a mix of standards and originals, allowing for endless invention and convivial swing. The bittersweet timing of the release of this vault recording, so soon after the deaths of both jazz giants, makes it all the more a treasure.

It's often assumed that duos are dialed-down, whisper-quiet, even lightweight affairs, but the rock-solid time feel and depth of attack apparent in "Bemsha Swing," the Thelonious Monk classic that opens the set, puts that notion to rest. Haden and Hall speak Monk's harmonic language with a loose fluency that startles on every chorus.

The ballads are as astonishing. Hall burrows deep inside the minor-key Haden vehicle "First Song," quotes Coleman Hawkins ingeniously in "Body and Soul," and works up to a stunning cadenza in "Skylark." He uses the guitar expansively: chording in rich parallel patterns, picking deep-toned single notes, strumming breezily in his own "Down from Antigua," activating a chorus pedal in "Big Blues" and other tracks.

In his liner notes, pianist and prolific blogger Ethan Iverson traces Haden's and Hall's interconnected histories and muses on their brilliance as a duo. By 1990 they were hardened veterans who were still fresh and youthful in their approaches, somehow balancing limitless freedom and unerring accuracy in a dialogue that will never die. —David R. Adler



CHARLES MCPHERSON
The Journey

Charles McPherson, alto saxophone; Keith Oxman, tenor saxophone; Chip Stephens, piano; Ken Walker, bass; Todd Reid, drums
Capri 74136-2 (CD). 2015. Thomas C. Burns, Keith Oxman, Chip Stephens, prods.; Colin Bricker, eng. DDD. TT: 55:33

PERFORMANCE ★★★★★

SONICS ★★★★★

Best known for his dozen years with Charles Mingus, septuagenarian Charles McPherson performs in a more conservative post-bop style than Mingus did; he can evoke Charlie Parker so faithfully that he was chosen to play the supplemental alto-sax parts in Clint Eastwood's Parker biopic, *Bird*. Here, with four Denver-based journeymen, he bops brightly through a set of sleekly arranged originals by himself and his sidemen, plus one Parker tune and two standards.

The session resulted from a Denver meeting between the Detroit-bred, San Diego-based McPherson and Keith Oxman, whose tenor sax so closely resembles McPherson's alto that, often, only the difference in register distinguishes them. The two harmonize in a bopped-up take on the Rodgers and Hart ballad "Spring Is Here," and in McPherson's straight-ahead ballad "Manhattan Nocturne"; they trade fours in Parker's "Au Privave," and Oxman alone is heard on his own "Tami's Tune." Bassist Ken Walker is self-effacingly supportive, while pianist Chip Stephens and drummer Todd Reid lend a more modern feel.

Two ballads, Oxman's "Elena" and the standard "I Should Care," showcase McPherson's burnished lyricism and Stephens's harmonic sophistication. All in all, it's an impressive effort—vividly conceived, technically accomplished, and performed with admirable ensemble empathy—but there's no cutting edge, no original vision; only a highly polished execution of conventional ideas. —Larry Birnbaum



KENNY WHEELER
Songs for Quintet

Kenny Wheeler, flugelhorn; Stan Sulzmann, tenor saxophone; John Parricelli, guitar; Chris Laurence, double bass; Martin France, drums
ECM 2388 (CD). 2015. Manfred Eicher, Steve Lake, prods.; Andrew Dudman, eng. DDD. TT: 52:14

PERFORMANCE ★★★★★

SONICS ★★★★★

Kenny Wheeler died last September. This, his final recording, was released on what would have been his 85th birthday. Always, he set the exquisite sorrow of his flugelhorn tone against elliptically playful compositions. The result was wry, bittersweet, unsentimental, deeply felt—even his occasional flubs seemed stumbled on with impeccable taste. Wheeler's compositions often uncoil through a sinuous chromaticism as slyly deadpan as it is melancholy; "Jigsaw" is a prime example. Wheeler ruminates over a light, loosely sprung rhythm with dense but delicate drumming by Martin France, as John Parricelli comps more sensitively than any electric guitarist since John Abercrombie (another sometime Wheeler collaborator). Wheeler lets Parricelli state the head solo, but it's mainly a feature for Stan Sulzmann, whose long, clear, lonely tenor-sax lines are lyricism embodied—at the end, the sour unison of his and Wheeler's horns as the leader reclaims the tune is palate-twistingly pungent. "Pretty Liddle Waltz" is misnamed—the merely pretty was never so beautiful. The soloists often play in tender 4 against the basic 3, like new lovers learning the rhythms of each other's bodies. "Nonetheless," a gentle bossa nova, has an outspiraling melody, expansive modulations, and Wheeler's trademark intervallic leaps—always higher, wider, deeper than one foresees.

Who would write an elegy for a man whose every musical utterance was rich in harmonics of the elegiac? None more eloquently than Wheeler himself. —Richard Lehnert

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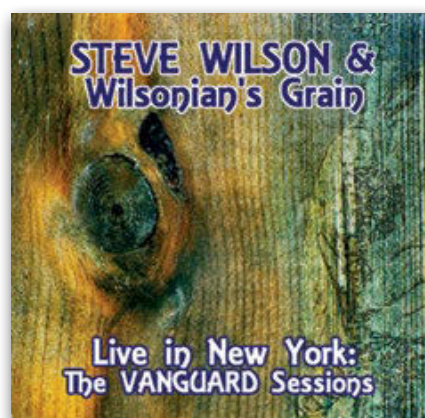
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**STEVE WILSON &
WILSONIAN'S GRAIN**
*Live in New York:
The Vanguard Sessions*

Steve Wilson, alto and soprano saxophones;
Orrin Evans, piano; Ugonna Okegwo, bass;
Bill Stewart, drums
Random Act RAR1017CD (CD). 2015. Laura
Hartmann, prod.; Eli Walker, Jake Hartmann, engs.
DDD. TT: 60:42

PERFORMANCE ★★★★★

SONICS ★★★★★

This record arrives to high expectations and mostly exceeds them. Steve Wilson's reputation as a world-class saxophonist is based on his work as a sideman with major ensembles. He had not made an album of his own in 12 years, although the excellent

quartet here has played occasional gigs since 2008.

Live in New York opens with a rough, crashing "Well You Needn't." In his first recording at the Village Vanguard, incited by all the famous ghosts who haunt that room, Wilson sounds frantic, wildly careening around the corners of Monk's tune. Just when you think this album will be all white-hot, Wilson switches from alto to soprano, recovers himself, and becomes centered, measured, deep, and advanced. In a tone of pure silver light, he patiently ponders Orrin Evans's "Spot It You Got It." The next piece, "Chrysalis," is a personal ballad by Wilson. On soprano, he tenderly traces its fine lines. A piece titled "Chrysalis" must be about transition. Wilson's phrases resolve in bright ascents that suggest affirmation. But then Evans's piano takes over, first in single-note mysteries, then in powerful chords, dark tremolos, and nervous fast runs. His solo throws everything you thought about the song into doubt, but it returns to quietude as surprisingly as it spiked. Evans has become one of the most provocative piano accompanists in jazz.

"Chrysalis" is a stunning ensemble achievement. There are four more strong tracks. The sound is satisfactory, but does not capture enough Vanguard ambience. The unfortunate decision to fade applause after each tune disrupts the illusion of being there.

—Thomas Conrad

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MANUFACTURERS' COMMENTS

THIS ISSUE: DALI, Musical Surroundings, and Tekton Design comment on our reviews of their products.

Clearaudio Maestro V2 Ebony

Editor:

Thanks to Michael Fremer and *Stereophile* for the very positive review of the Clearaudio Maestro V2 Ebony moving-magnet cartridge. The original Clearaudio Maestro was introduced almost 15 years ago. In 2007, Michael reviewed it as the best MM he had heard. It was our best-selling cartridge, and the Maestro V2 Ebony, introduced in November 2012, continues that track record today."

Michael compared the Maestro V2 Ebony against "far more expensive" moving-coils (some costing up to five times its price) and never felt he was missing anything. Comparing the Maestro V2 Ebony to another great MM, it clearly "beat it in terms of dynamics and, especially, weight and slam."

The Maestro V2 Ebony has the same stylus/cantilever as our most expensive MC cartridges, including the Goldfinger Statement. All Clearaudio cartridges, including the moving-magnets, feature factory mounting of the stylus/cantilever. The finer alignment and tolerance achieved at the German factory provides superior dynamics and resolution. All of the new V2 Ebony MM models share this advantage, as well as eliminating the issues associated with high-gain phono stages.

We applaud Michael's explanations of cartridge-generator design. It is a much more complex formula than the number of windings and magnet strength. Some high-impedance-coil MCs have low output (Dynavector), others have very strong magnets (Benz LP-S), and others are anything but slow (Clearaudio and van den Hul). MC-generator design is a quest for greatest linearity, controlling magnetic saturation and overload. The coil(s) are moved within the magnetic flux field, influenced by the interaction of the record-groove modulation, cartridge compliance, and tonearm mechanics, as well as being influenced by the phono stage and the resistive loading. This complex formula involves coil shape (square plate or cross coil) and material (ferrous, iron, or non-ferrous, such as ruby). Cantilever length and material determine coil displacement, and damper design determines overshoot and ringing. Magnet material (neodymium, alnico, or samarium cobalt) as well as magnet shape, size, quantity, pole pieces,

and magnetic gap play tremendous roles. A great deal of work has been done in regard to better controlling flux fields through mechanical frame and body design, as well as shielding.

Our trade-up program allows first-generation Maestros to be upgraded to the V2 Ebony for only 60% of the current retail price.

Garth Leerer
Musical Surroundings

DALI Rubicon 8

Editor:

What a fantastic, thorough examination of this speaker (March 2015)! I wish more reviewers could and would be this thorough! It would definitely only improve the speaker industry and the quality of it!

The use of complex-summed nearfield measurements does in fact not make a 100% correct total response for speakers with multiway driver arrays. The frequency curve in the article shows a much less linear midrange response than what can be measured in the farfield in a big room simulating a freefield response, both on and off axis. There may be academic reasons to [publish] the curve, but I do find it a bit misleading.

The cabinet-surface resonances measured and monitored (by stethoscope) and commented on by John Atkinson are in fact results of quite conscious choices. In fact, we tend to prefer this type of measurable but barely audible low-Q resonance over the very common alternative obtained through heavy bracing and other internal stiffening of cabinet-wall structures. Excessive bracing leads to less vibration, but all resonances will be pushed to higher frequencies, where they can be more fatiguing over the long term, although at a lower (measured) sound-pressure level. Another artifact of excessive bracing is the partial blocking of free airflow inside the cabinet, leading to both internal standing waves (at higher frequency) and reflections and, even more important, a reduction of air transmission and air speed in the delicately balanced resonance system of drivers and ports (bass reflex). A common mistake in bass-reflex design is to compromise the free airflow by damping the cabinet and port Q of the tuned system, but that will lead to coloration, level-dependent tuning (due to local microturbulence phenom-

ena), and delays in the summation of responses from driver and port.

A good bass-reflex system does not "add" bass at all; instead, it reduces distortion and/or increases the maximum SPL from a given enclosure and, not least, allows the designer to tailor the time/step response more freely than in a sealed enclosure.

Lars Worre
DALI Loudspeakers

Tekton Design Enzo XL

Editor:

Tekton Design would like to extend a heartfelt thanks to Herb Reichert, John Atkinson, and the entire team at *Stereophile*. Thank you for a careful and thorough review of our Enzo XL speakers.

Herb Reichert's words echo many comments and observations that flow in regularly from our valued clients. Thank you, Herb! Additionally, John Atkinson's detailed measurements are also greatly appreciated. John, thank you for your precision! Together, these reviewers have provided us with valuable information and feedback going forward.

Hopefully, we all have a hero or two. As I reflect on the design process I went through in creating the Enzo XL speakers, three audio legends come to mind: Jon Dahlquist, John Dunlavy, and Jim Thiel. These audio pioneers cared about sound quality to a high extent, and they all have deeply inspired me to simply keep on creating. When I assemble a pair of speakers, I feel connected to these great men, and I am empowered by their legacy of quality loudspeaker design.

At Tekton Design, we feel that loudspeakers should be treated as musical instruments instead of as electrical components. Trade-offs are inherent in the design of any musical instrument, and the Enzo XL speakers are no exception. JA noted the cabinet resonances in the Enzo XL design. We could have built inert cabinets for this speaker, but then we would have had a speaker that cost and weighed a magnitude more without producing a sound quality that reflected the higher cost. The Enzo XL speakers were designed as an exercise in affordable hi-fi technology. Producing a great loudspeaker is a delicate balance of science and art.

Eric Alexander, President
Tekton Design

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– *The Absolute Sound*, September, 2014

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ADVERTISER INDEX

Acoustic Sounds	14-15, 52, 68
Arcam Limited	96
Astell&Kern	88
Audeze	33
Audience	124
Audio Concepts	160
Audio Plus Services	C4
Audio Research	132
Audioengine	130
AudioQuest	102
Audiowaves	191
Auralic Limited	4
Aurender	170
AXPONA	152
Axis Distribution	56
Ayre Acoustics	110
Baetis Audio	134
Balanced Audio Technology	86
Bel Canto	10
Brinkmann USA	134
Bryston	6
Bowers & Wilkins	62
Cable Company	18-19, 190
California Audio Show	164

Channel D	146
Chord Electronics	54
Conrad-Johnson	139
Crystal Cable	144
Dagostino	47
David Lewis Audio	187
dCS	82
DEQX	150
Dynaudio	100
Elusive Disc	30-31, 178
Emotiva Audio	154
Fidelis Audio	27
Get Better Sound	176
Golden Ear Technology	C2
Goodwin's High End	93
GTT AV	70
Hammertone	36-37
HDtracks	166
JL Audio	8, 9
Joseph Audio	118
JPS Labs	50
Katli Audio	148
KEF	64
Kevro Monitor Audio	108
Kimber Kable	78
Lamm Industries	12
LKV Research	119
MartinLogan	114
MBL North America, Inc.	99
MSB Technology	119
Music Direct	24-25, 142, 146
Musical Surroundings	116
NAD	58
Needle Doctor	41, 90, 104, 140 158, 162, 172, 186, 188
Nordost	112
Oppo Digital	94
Ortofon	74, 121
Pangea	42-43
Paradigm	48
Parts Express	168
Pass Laboratories	76
PrimaLuna	22
Radial Engineering	85, 99
Rogers High Fidelity	136
Rogue Audio	21
Shunyata Research	66
SignalPath	138
Silnote Audio	169
Siltech	C3
Simaudio	120
Spendor Audio	34
Sumiko	72
Synergistic Research	184

Take 5 Audio	168
T.H.E. Show	156
Theoretica	45
Thiel Loudspeakers	174
Ultra Systems	190
Upscale Audio	22, 28
usedcable.com	190
VAC	106
Vandersteen Audio	126
VooDoo Cable	190
VPI Industries	38
Wavelength Audio	75
Weinhart Design	122
Wharfedale	85
Wireworld	182
WS Distributing	42-43
YG Acoustics	16

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"I can't understand why people are frightened of new ideas. I'm frightened of the old ones."

—JOHN CAGE

Youth Wasted On the Old

It's the natural progression of things. As you get older, you spend less time in record stores, even less time dragging your ass out to hear live music. Maybe sitting in front of a computer screen, surfing YouTube or Pitchfork, is not your thing. Then there's streaming . . .

An even more virulent form of musical curmudgeonliness seems to have taken hold of my middle-aged musical friends. Lately, they've given up. They're all sure that today's music sucks. Young musicians aren't John and Paul, music ain't like it used to be, blah blah blah. Reminds me of a Frank Zappa quote about "just a bunch of old men with rock & roll clothes on sitting around the studio, mumbling about the good old days." It's not that I disagree with everything they say—it's just that I refuse to stop listening. I'm too young to get too old. And besides, don't be absurd: Not *all* new music is bad. And most art produced in any era is crap. It takes time to sort out what is memorable, and what's of true lasting value.

Which brings me to a letter *Stereophile* recently received, from reader Jeffrey Mead.

"I enjoy ['Aural Robert'] and Robert Baird's writing, but picked up a sentence in his latest piece [January 2015], discussing Zep's reissue of 'Zoso,' that I challenge. Robert writes, when addressing the record business in general, 'the declining importance of music especially among the young.' I think the premise of a declining importance of music in general, and particularly with 'the young,' is off the mark. I have two sons, 23 and 25. Both love music, and primarily listen in the digital realm, but the 23-year-old, along with some of his friends, has taken to vinyl. And in that pursuit, his dad helps him out, particularly at birthdays and Christmas, with his vinyl collection. One being the remastered 'Zoso' vinyl reissue this very recent Christmas."

Always glad to get letters, especially if they impugn my sexual prowess, belittle my already questionable mental faculties, or contain such charming epigrams as one memorable screed that labeled me "A never-was and never-will-be writer," I decided to respond to Mr. Mead's more reasonable communiqué:

"About my comment about the declining importance of music among the young, the facts are hard to ignore. Today, 40,000 in sales, for a single or full album, will land you a high spot on the *Billboard* charts. Just off the top of my head, I'd say the Beatles probably sold ten times that number in NYC alone [out of a staggering 2.3 billion and counting in total sales!]. Or Zep *IV* in NYC alone? Probably the same number. And if you listen to all kinds of music, like I do (not that old yet), it's hard to deny that such a thing as disposable music exists. The stuff ain't gonna last. It's tracks. It's dance music, which is fine. But it's not great songwriting. Or some important artistic statement. Or for album collectors. Much of it never makes it to an album, or even a physical single.

"Did you watch any of the New Year's Eve broadcast from Times Square? A lot of marketing concepts masquer-

ading as bands and musicians. Not much memorable material there. Songwriting is not what it once was. A onetime country artist [Taylor Swift] turned pop star, singing about NYC, was the night's most memorable tune.

"Over Christmas, I polled all the teenaged members of my family. Not one of them, male or female, could name an artist they really liked. Oh, they like music, but more as background than anything else.

"I'm not blaming anyone, and this is not an indictment of this generation—they simply have a lot more things tugging on their leisure time than did earlier generations. I figure gaming alone siphons off much of the creative energy that once powered bands like Led Zeppelin. It's simply change. It's the way of the world. Creativity is restless and moves on."

I really believe that if John Lennon and Paul McCartney were starting out today, they'd be culling and building beats, writing code for the next blockbuster computer game, or, most likely, designing apps. Aspiring musicians today, even in Americana, rarely sit in rooms listening to Michael Jackson records, let alone those of Robert Johnson, Hank Williams, or the Gershwins, and woodshed their way into being instrumental virtuosos or songwriting legends. And why should they? Beats, not songs, are king. What little money is left in the music business comes from assembling dance tracks. More ominously, is streaming stunting musicians? Why labor over your content and sound when it's gonna be streamed for pennies through computer speakers? And let us never forget that piracy still bleeds off a fair percentage of what would normally be sales.

Yet all is not lost. Again, it's all part of a natural process, just like the migration from sheet music to records, from records to YouTube, and from downloads to streaming. High-resolution downloads continue to increase through services like HDtracks, and Acoustic Sounds' Super Hi Rez. And though just a tiny ember now (or perhaps a fad?), another side of the music world, driven by the young, is intensifying. To quote from a recent *Rolling Stone* article, itself a digestion of data from Nielsen/SoundScan: "Vinyl continues to be a noteworthy music industry trend, and in 2014, the 12-inch had its best year in decades, selling 9.2 million units. That's a 51.8 percent increase over 2013, and vinyl sales now account for six percent of all physical music sales."

As I was finishing this column, I descended into the subway—on my way to, strangely enough, a record store. Suddenly, I was hearing a very creditable version of "Ziggy Stardust," sung in Portuguese by a bearded, teenaged troubadour, playing a mean acoustic guitar. Once inside said record store, I was repeatedly elbowed out of the "New Arrivals" section by a pair of twentysomething females intent on their digging. Their eyes flashed obsession—and *Get out of my way!*

Hope? Like age, it's a natural progression. ■

Music critic Robert Baird (robert.baird@sorc.com) welcomes a vibrant discourse on music and musicians.



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